August 15, 1942

Railway Age

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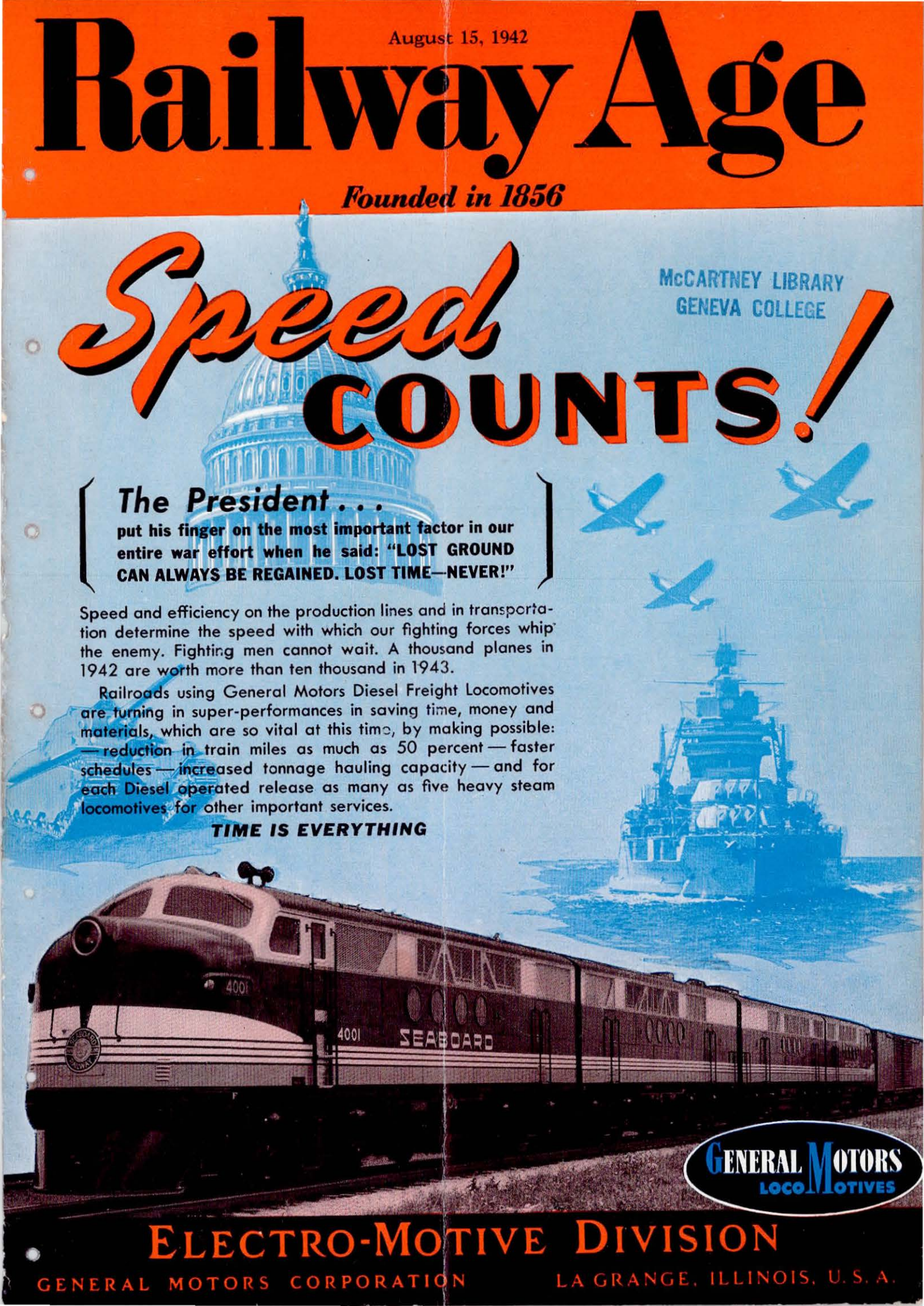
put his finger on the most important factor in our entire war effort when he said: "LOST GROUND CAN ALWAYS BE REGAINED. LOST TIME—NEVER!"

Speed and efficiency on the production lines and in transportation determine the speed with which our fighting forces whip the enemy. Fighting men cannot wait. A thousand planes in 1942 are worth more than ten thousand in 1943.

Railroads using General Motors Diesel Freight Locomotives are turning in super-performances in saving time, money and materials, which are so vital at this time, by making possible: — reduction in train miles as much as 50 percent — faster schedules — increased tonnage hauling capacity — and for each Diesel operated release as many as five heavy steam locomotives for other important services.

TIME IS EVERYTHING



GENERAL MOTORS LOCOMOTIVES

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION — LA GRANGE, ILLINOIS, U.S.A.

On new *Freight* equipment, Schaefer connections through the bolster in combination with Schaefer loop hangers and truck levers—is *the modern way.*

Schaefer EQUIPMENT COMPANY

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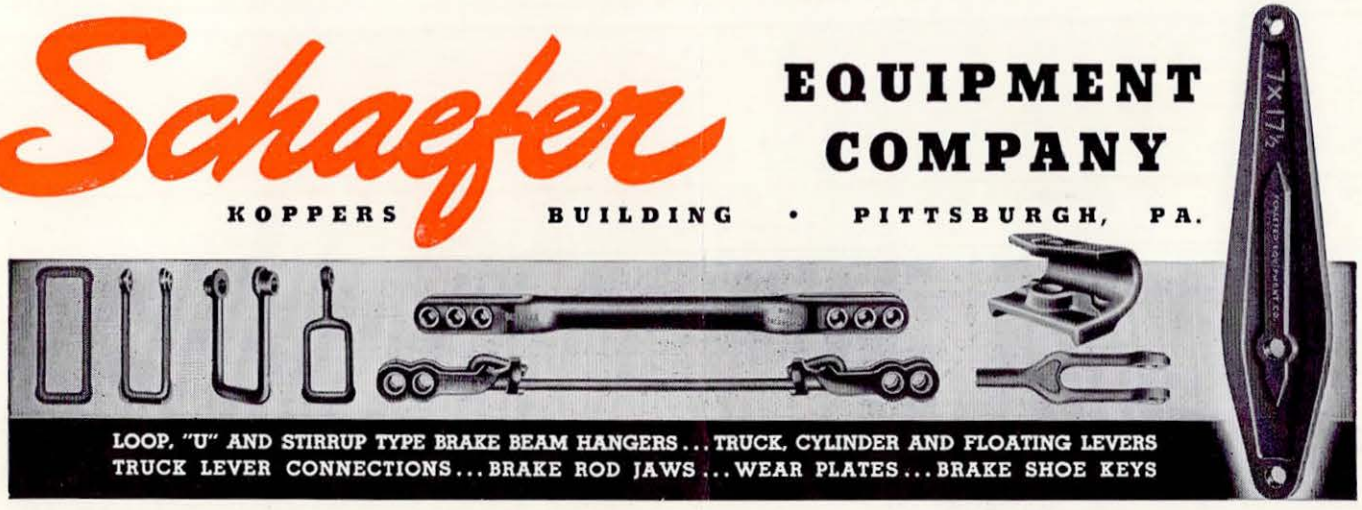
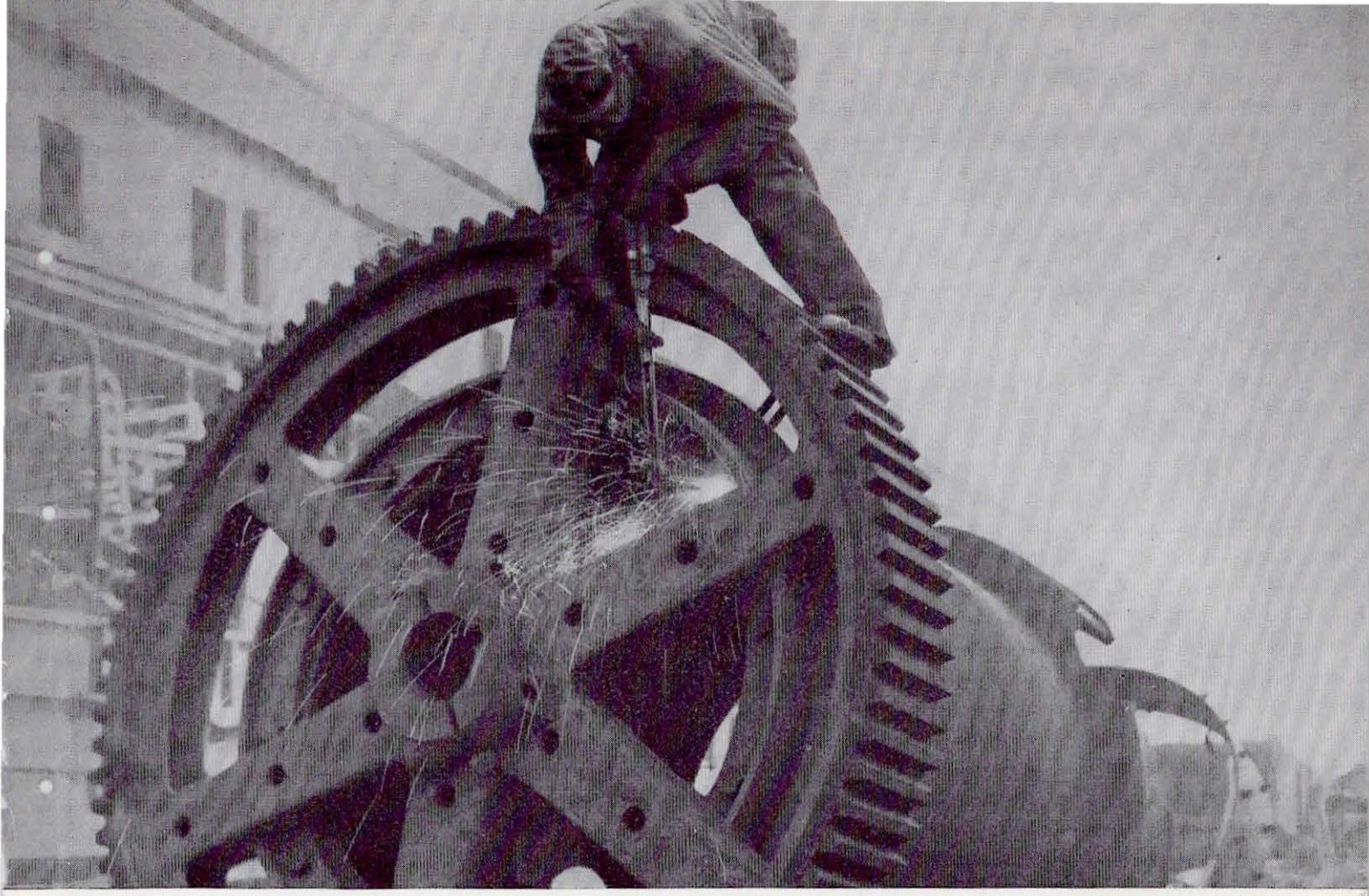


LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS ... TRUCK, CYLINDER AND FLOATING LEVERS
TRUCK LEVER CONNECTIONS ... BRAKE ROD JAWS ... WEAR PLATES ... BRAKE SHOE KEYS

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 113, No. 7.



"Gertie" was cut up and fed to the Inland furnaces the day she arrived at the mills.

"Old Gertie" Goes to War

Inland Mine Hoist Makes Scrap for Hungry Furnaces

To help meet the critical need for scrap, an auxiliary mine hoist once affectionately known as "Gertie," was taken out of retirement at one of the Inland ore mines and shipped to the company's mills at Indiana Harbor. The need for scrap is so urgent that "Gertie" was cut up and fed to the hungry Inland furnaces the day she arrived at the mill. She was rolled into steel plates and soon will be part of a Liberty ship carrying vital war supplies to the fighting fronts.

"Gertie" is typical of many pieces of equipment in factories, mines, etc. throughout the country. Replaced by a modern electric hoist several years ago, this old mine hoist was stored because it "might come in handy some day." Holding old machinery, stacks, tanks, tools, jigs, dies, even partly finished parts, for possible future use is a commendable practice in ordinary times. But this is war—*total war*—and everything made of steel, that is not being used to produce for war, ought to be scrapped and started on its way to the steel mills at once.

Many steel mill furnaces are down, while millions of tons of needed scrap remain unreclaimed. The scrap situation is critical now and it will become more critical as winter approaches, unless management of American industry gives authority to scrap old equipment and materials. If you can't use it *now*—scrap it.

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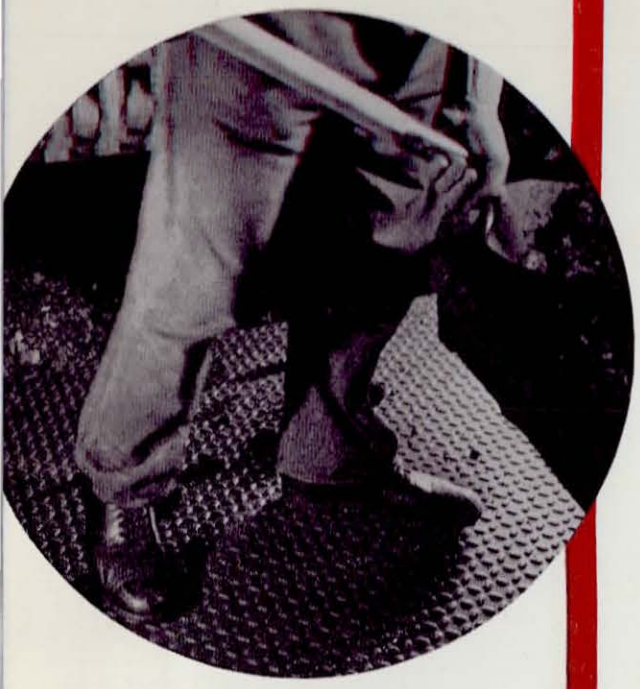
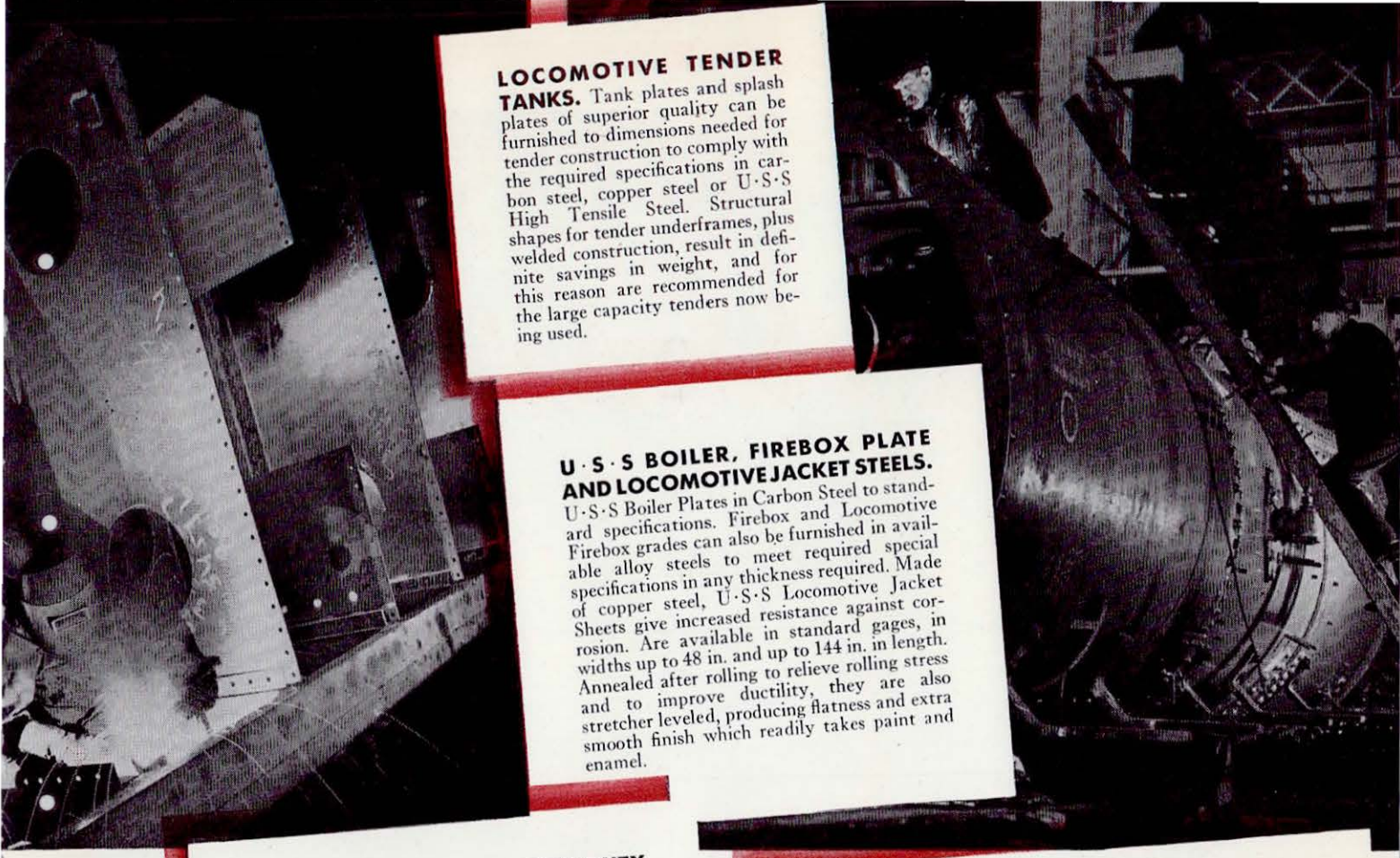


FOR GREAT SAFETY UNDER FOOT U·S·S Multigrip Floor Plate — non-skid, easily cleaned, provides safe footing under all conditions. Recommended for passenger car steps, vestibules, for tender platforms and for locomotive cab floors and running boards. The short, flat top risers set at right angles to each other give positive traction in any direction, yet are comfortable under foot. Their sloping sides make tripping impossible. U·S·S Multigrip Floor Plate is an important contribution to your safety program.

WE are doing everything we can to serve the railroads' needs for these products. Today, of course, war materials have first call on our facilities. Our service to the railroads is therefore restricted by prevailing priority ratings. Our Railroad Steel Specialists will be glad to discuss your steel problems with you and cooperate in every way possible.

U·S·S WROUGHT STEEL FOUNDATIONS—in more than 500 installations they have practically eliminated all trouble due to cracked frames. Torch-cut from solid slabs of superior quality wrought and rolled open-hearth steel, U·S·S Locomotive Side Frames are uniform in strength from end to end. *They cost less* because no expensive patterns are necessary. *They weigh less* because the high physical properties of rolled steel make it possible to safely reduce sections. *They have greater flexibility*, safely absorb shocks, impact, weave and vibration. They provide *greater margin of safety* because rolled steel is free of imperfections throughout and possesses high degree of homogeneity. When existing frames are repaired, part-frame wrought steel sections are *easily installed*. To Diesel electric builders they offer the additional advantage of greater freedom of design. Because our heat-treating facilities are primarily occupied for defense work, we suggest you submit your inquiries for possible consideration.



LOCOMOTIVE TENDER TANKS. Tank plates and splash plates of superior quality can be furnished to dimensions needed for tender construction to comply with the required specifications in carbon steel, copper steel or U·S·S High Tensile Steel. Structural shapes for tender underframes, plus welded construction, result in definite savings in weight, and for this reason are recommended for the large capacity tenders now being used.

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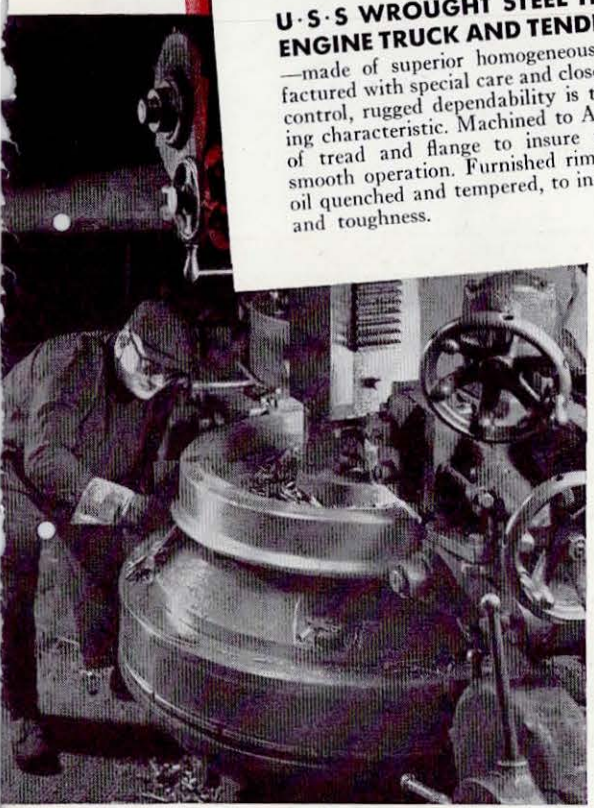

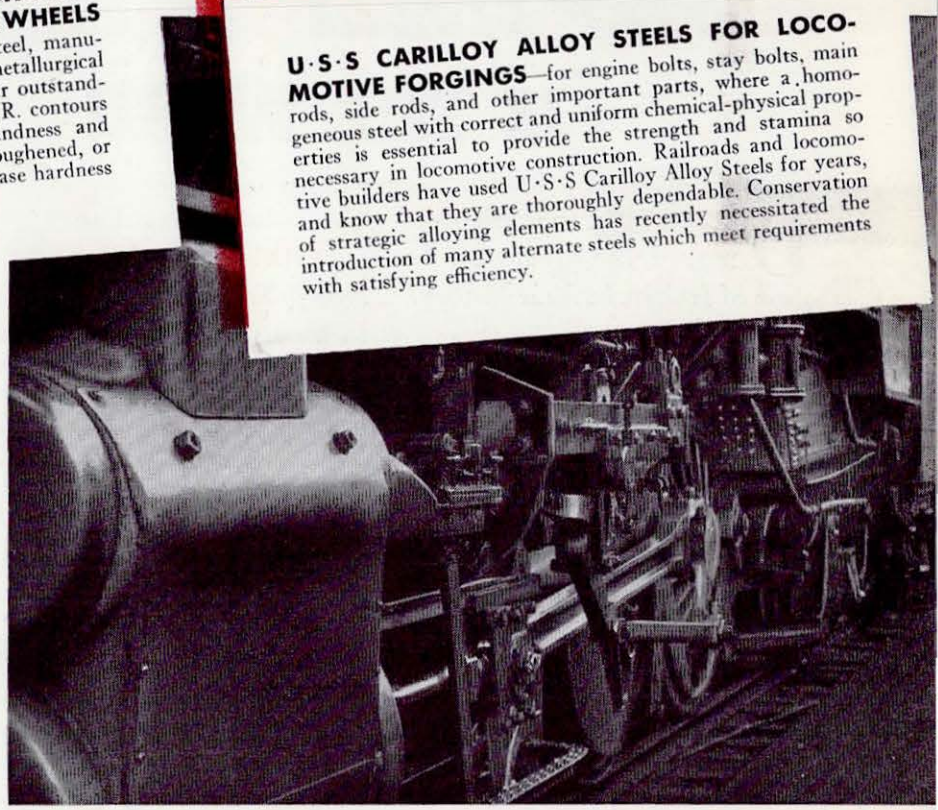

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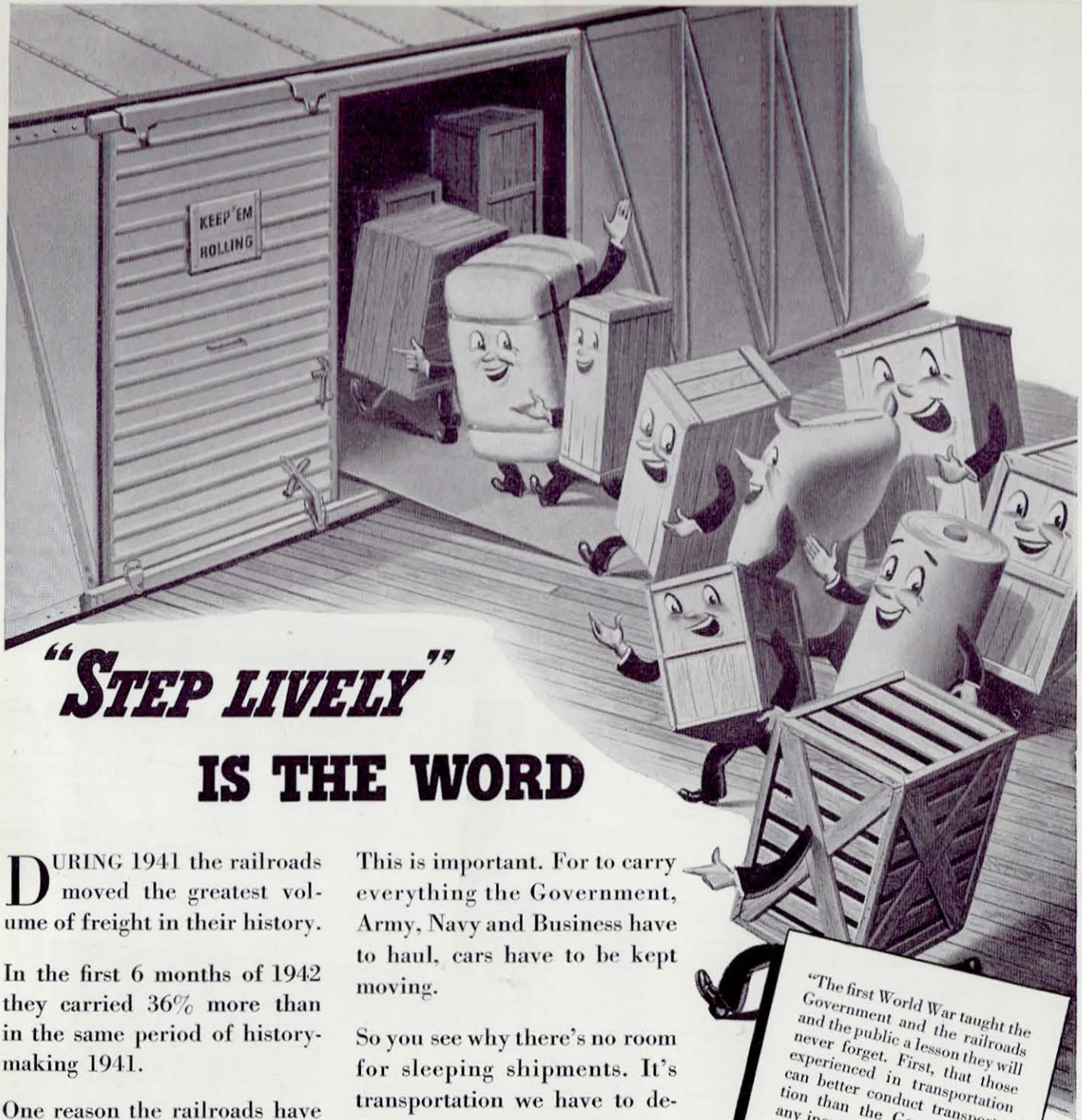

"STEP LIVELY" IS THE WORD

DURING 1941 the railroads moved the greatest volume of freight in their history.

In the first 6 months of 1942 they carried 36% more than in the same period of history-making 1941.

One reason the railroads have been able to do this has been the all-out cooperation of shippers.

Cars have been loaded heavier, sent away faster, emptied quicker.

This is important. For to carry everything the Government, Army, Navy and Business have to haul, cars have to be kept moving.

So you see why there's no room for sleeping shipments. It's transportation we have to deliver—someone else will supply the storage accommodations.

And so to keep war equipment, foods and commercial goods on the move, "step lively" is the word.

"The first World War taught the Government and the railroads and the public a lesson they will never forget. First, that those experienced in transportation can better conduct transportation than the Government or any inexperienced agency. Second, that railroad cars are never to be used for storage, but for transportation. Nothing shall be put in a car that cannot be immediately dispatched and unloaded at destination."—COLONEL J. MONROE JOHNSON, *Member of Interstate Commerce Commission in Charge of Bureau of Service.*

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Chromium is the key that has opened — and is still opening — great new fields of application for steel. Without chromium, the whole wonderful series of *stainless steels* would not have been possible. From tarnish-free tableware to corrosion-resistant chemical equipment . . . from strong, lightweight truck bodies to streamlined trains and airplanes . . . from heat-defiant boiler tubes to high-temperature steam turbines . . . chromium has made possible a *steel* with properties of the *noble metals.*

But the stainless steels are only one great contribution of chromium. This element has also helped to provide hard, shock-resistant armor plate and armor-piercing projectiles; long-wearing engine valves; strong, tough gears, tools, ball bearings, car trucks, shafts, springs, and dies; and hundreds of other improved articles.

We do not make steel of any kind. But for over 35 years, we have made ferro-alloys and alloying metals used in steelmaking. Among these are chromium, silicon, manganese, vanadium, tungsten, zirconium, columbium, and calcium.

It was our research and development that made the low-carbon grades of ferro-chromium available commercially. Without these, production of a majority of the stainless steels would have been impracticable. Inquiries about stainless and other alloy steels — their manufacture, fabrication, and use — are cordially invited.

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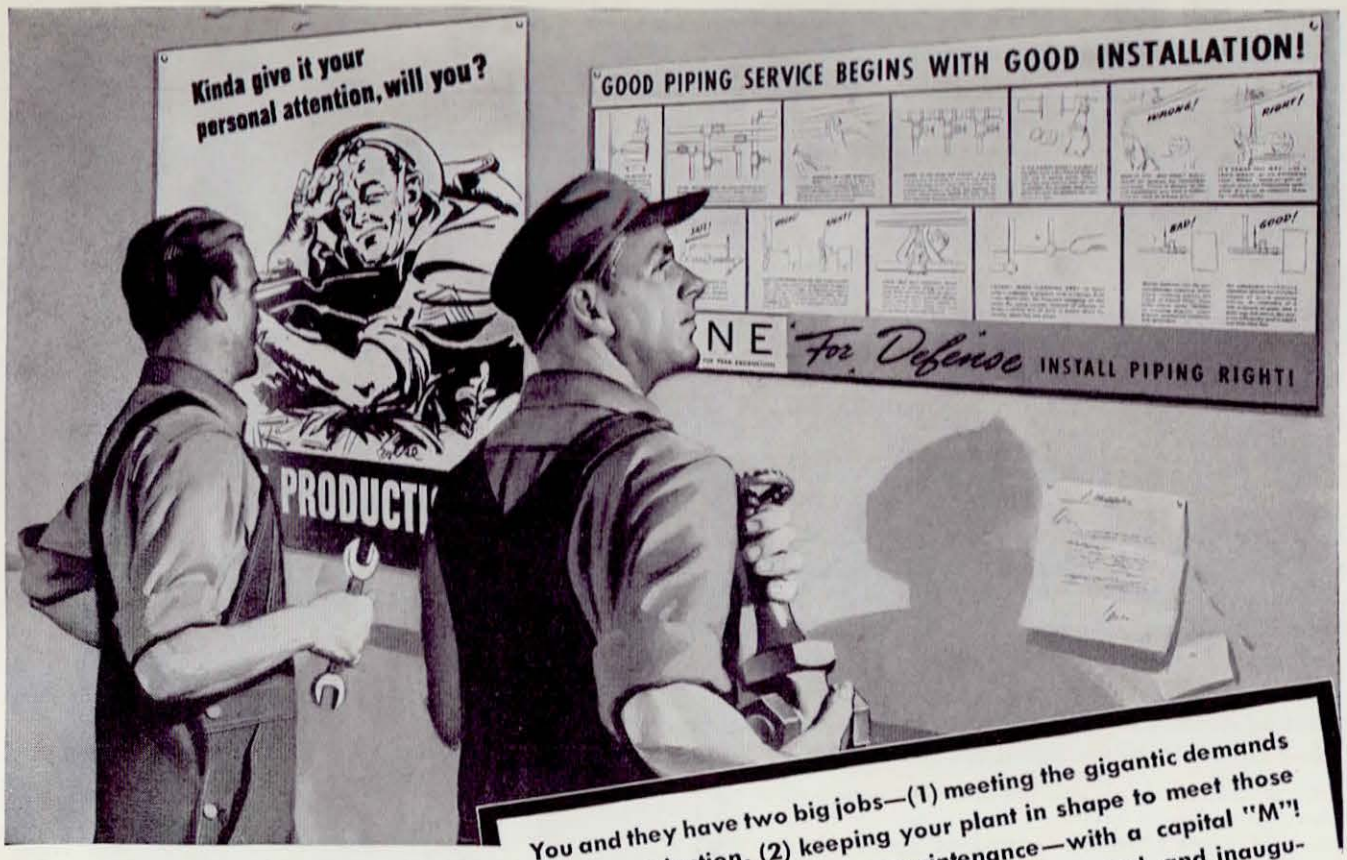
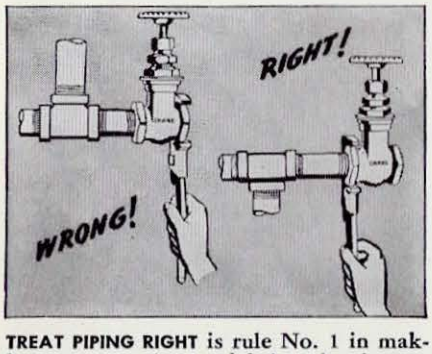

Kinda give it your personal attention, will you?
GOOD PIPING SERVICE BEGINS WITH GOOD INSTALLATION!
NE For Defense INSTALL PIPING RIGHT!

HELP FOR FIGHTERS ON THE *Home Front*

You and they have two big jobs—(1) meeting the gigantic demands of war production, (2) keeping your plant in shape to meet those demands. That means proper maintenance—with a capital "M"! Long before Pearl Harbor, Crane Co. saw this need, and inaugurated "Piping Pointers"—to help you and them do the job. Today, these Crane bulletins on better installation and care of piping are training new workers and spreading the gospel of proper maintenance—for peak production, for conservation of critical materials —for Victory! These examples show how they're doing it.



TREAT PIPING RIGHT is rule No. 1 in making present valves and fittings last longer —give maximum service. In "Piping Pointers," Crane tells maintenance men exactly how to do it—how to avoid little careless habits that shorten the life of equipment—how to prevent replacements now when replacements are harder to get.

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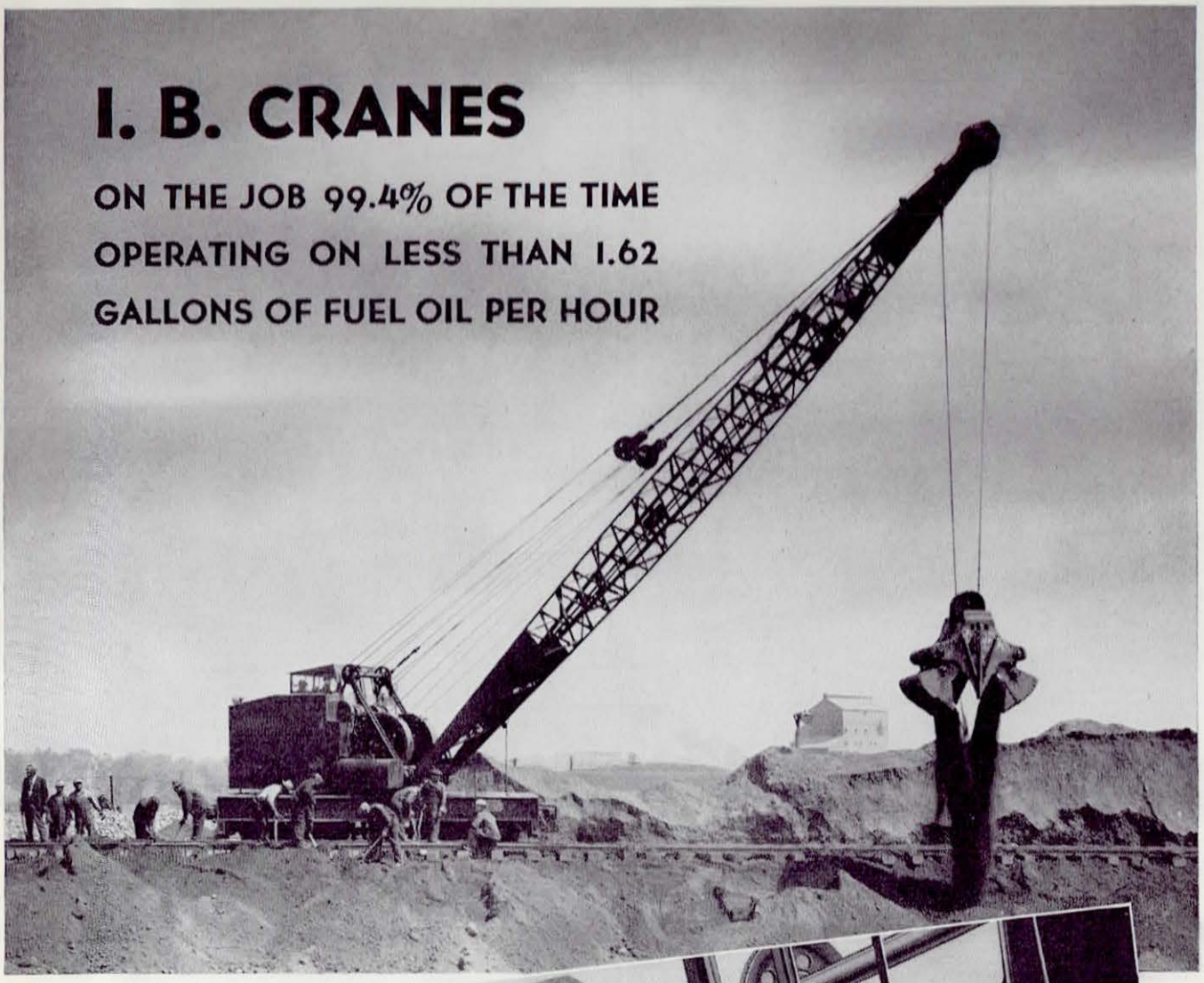

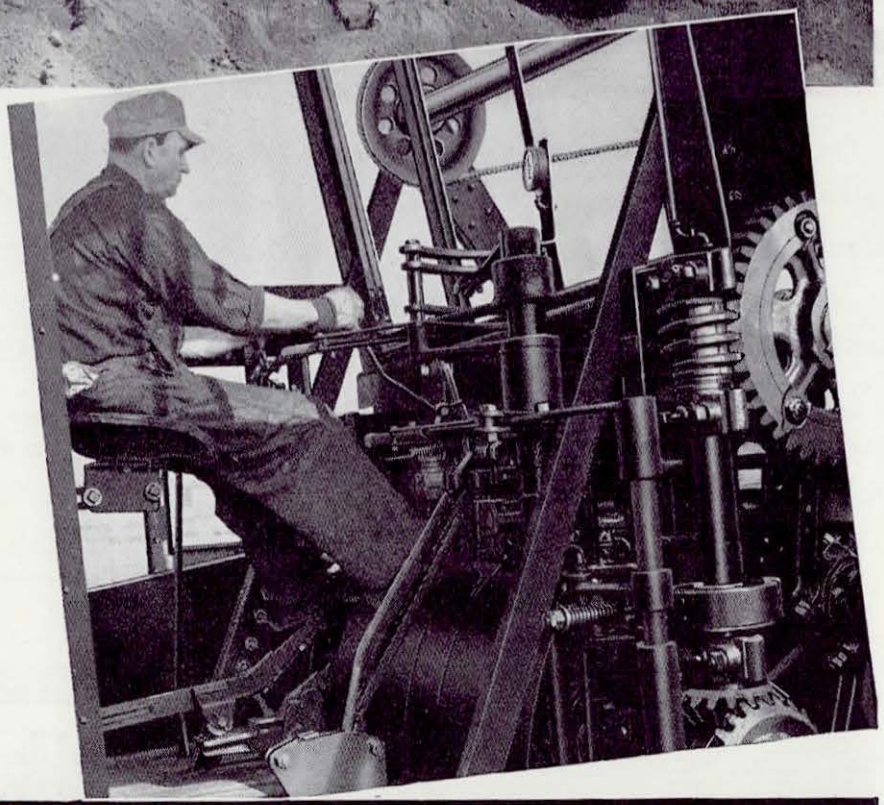

As an example of the efficiency of I.B. Cranes, take the case of one of America's large steel companies who have been operating two 30-ton Industrial Brownhoist Diesel-powered Cranes. Their records reveal that these cranes have been down for repairs only .6 of 1% of their life-time. And as for fuel consumption, these same cranes have consumed on the average of only 1.62 gallons of fuel oil per hour.

Yet this is by no means an isolated case. I.B. Cranes all over the country have been chalking up similar—and even better—records for top-notch performance on the job.

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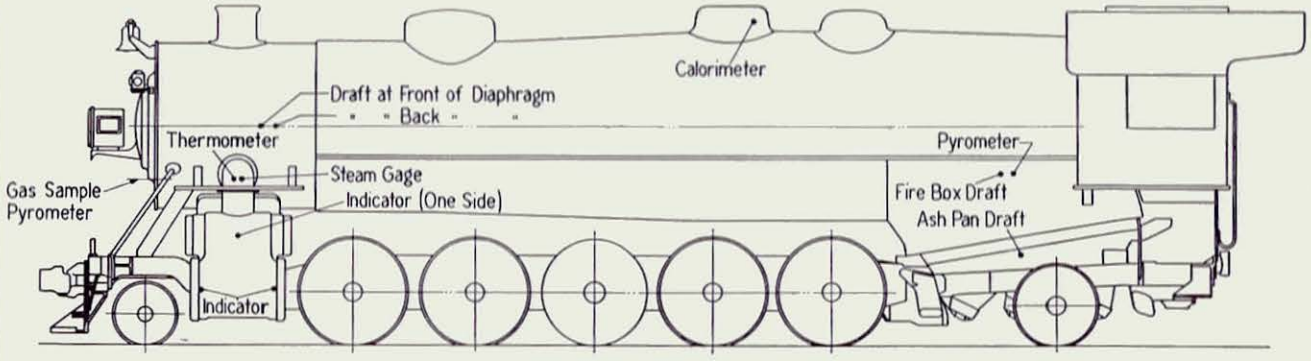
THE STEAM LOCOMOTIVE

By RALPH P. JOHNSON, M. E.

Chief Engineer, The Baldwin Locomotive Works



This is a complete treatise on the theory, operation and economics of the American steam locomotive. It is based upon current practice and recent research and material that has been tested out by the author and his co-workers. Comparisons are drawn with Diesel-electric and other types of motive power.

The author is a recognized authority on locomotive design, construction and testing. His experience in testing locomotives here and abroad with the aid of dynamometer cars is drawn upon for interesting observations on road testing methods.

To keep the subject matter as short as possible it has been stripped down to fundamentals, with just enough background included to indicate paths of development. The many tables have been checked against latest available data and the line drawings have been specially made for this book.

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R. A. 8-15-42

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Locomotive Classification—Locomotive Fuels—Combustion—Front Ends—Locomotive Cinders—Water for Boiler Use—Evaporation—Superheat—Tractive Force—Horsepower—Resistance—Tonnage Rating—Curves—Valve Gears and Valve Setting—Counterbalancing—Acceleration—Torque Diagrams—Locomotive Testing—Dynamometer Cars—High Speed Trains—Streamlined and Light Weight Trains—Motive Power for High Speed Service—Motive Power for Switching Service—Relation of Locomotive Operating Expense to Net Operating Income—Locomotive Repair Costs—Economic Life. Appendix A—Locomotive Testing Apparatus. Appendix B—Derivation of Economic Life Formula. Appendix C—Typical Locomotive Dimensions.

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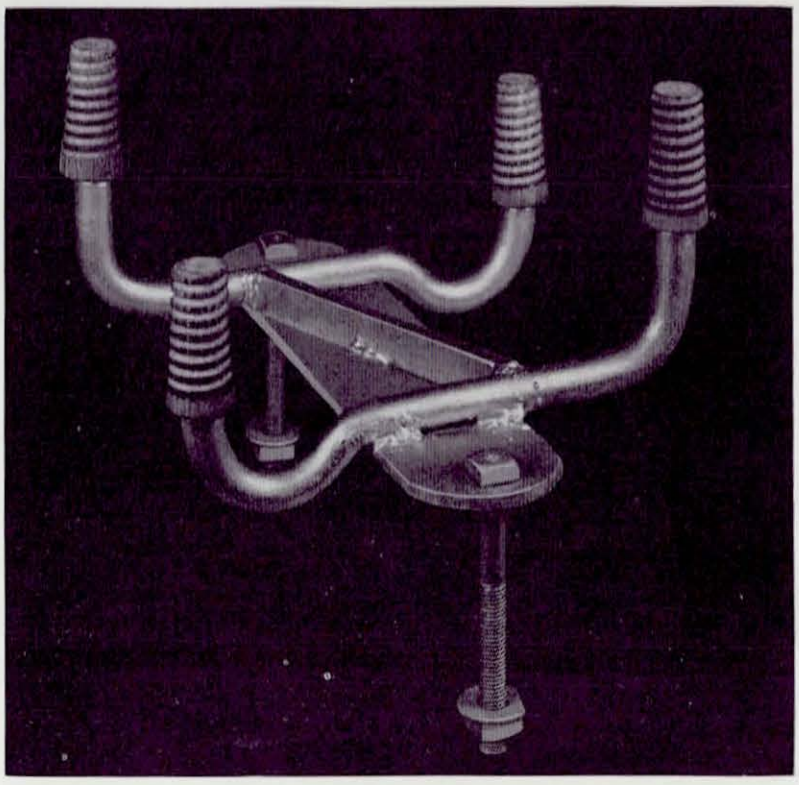

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- Maintain uniform distance between transpositions.

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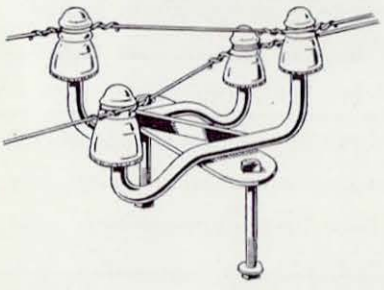

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Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

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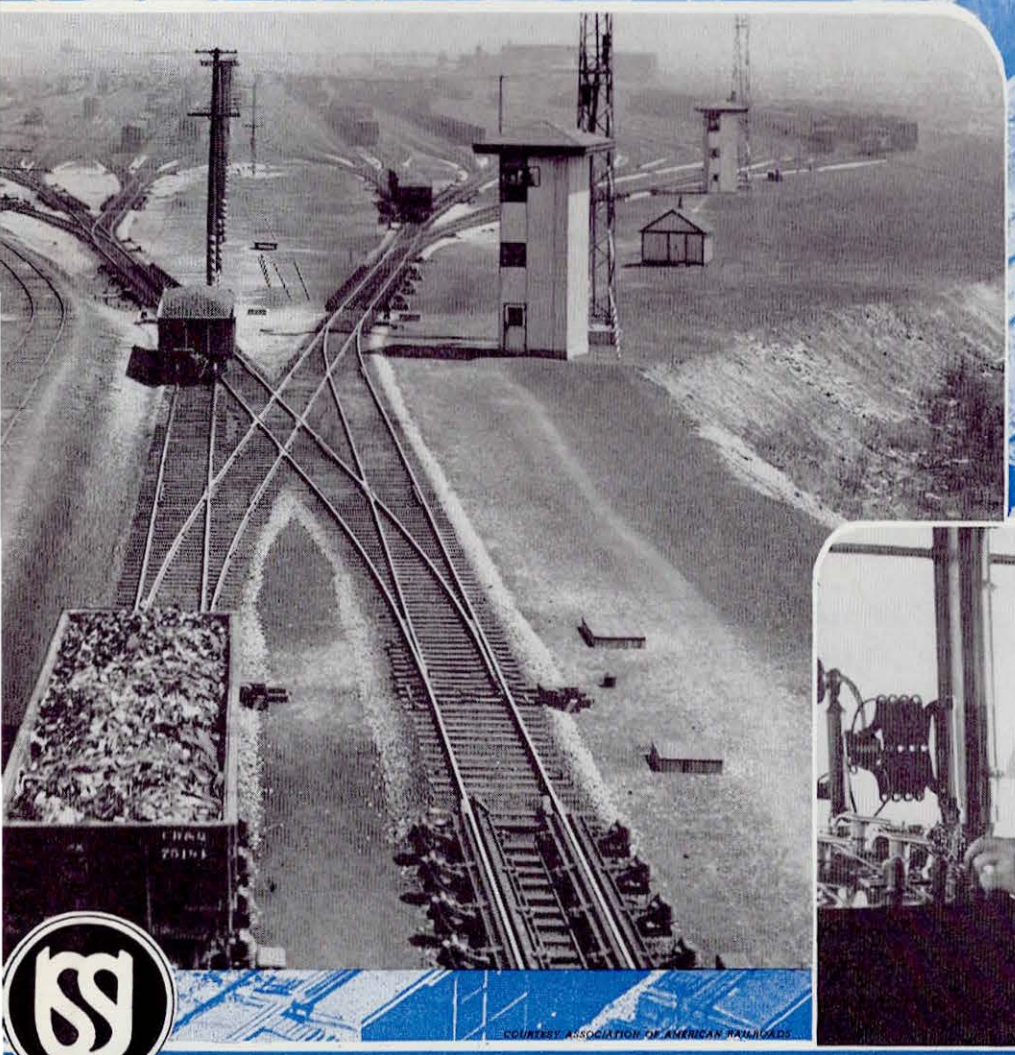
Time saved between terminals *should not be lost in the yards*

MODERN signaling is playing an important part in reducing the running time of freight trains between terminals. In many cases, however, the time savings so accomplished are being nullified by delays in the yards.

In hump yards, where "Union" Car Retarders and power-operated switches have been installed, maximum capacity is available at all hours regardless of weather conditions. With traffic flowing smoothly and continuously over the hump, yard delays and consequent yard congestion are largely eliminated. Trains are handled promptly upon arrival in the receiving yard. The efficiency of the yard is therefore increased and new trains are made up promptly for departure. Hours are saved for every train. « « « «



COURTESY ASSOCIATION OF AMERICAN RAILROADS

UNION SWITCH & SIGNAL COMPANY

SWISSVALE, PA.

NEW YORK **CHICAGO** **ST. LOUIS** **SAN FRANCISCO**

67

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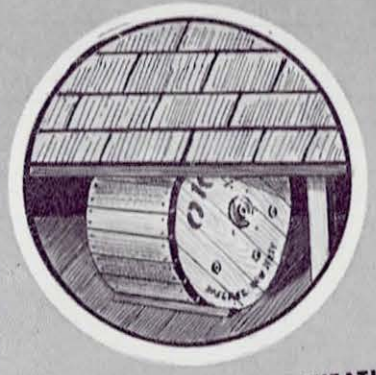

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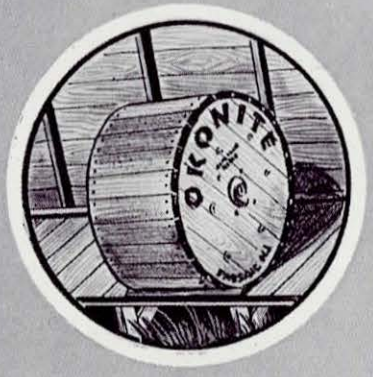

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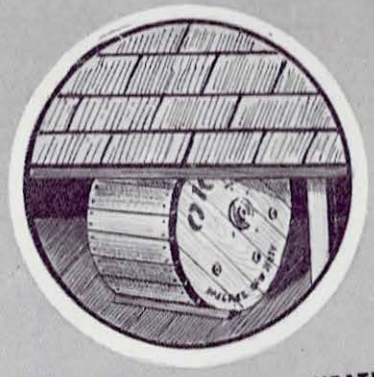

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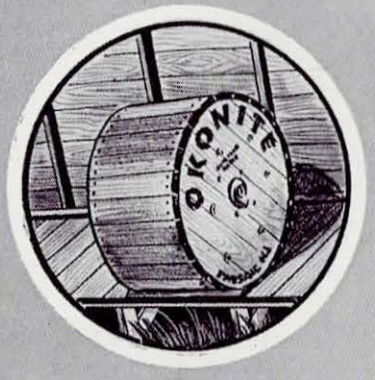

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Efficiency FOR VICTORY

What Kind of Post-War Economy?*

What kind of post-war economy we shall have will depend on whether we win the war, and on what kind of economy we really want.

An economist well-informed in Washington remarked recently that our New Deal government has been replaced by a *labor* government. Asked the significance of this, he replied it is favorable to capitalism—i.e., private enterprise—because labor leaders have learned that unions as well as capitalism are suppressed under Fascism or Communism, and prefer retaining capitalism because they can more easily "exploit" it.

But labor unions as well as business must conform to the economic laws of private enterprise to make it worth "exploiting." Failure to so conduct private enterprise as to provide (1) full employment and (2) maximum practicable production invites government controls, "planning," huge expenditures and crushing taxes. And experience proves that thus conducting private enterprise has become less a *technological* than an *economic* problem.

The last two years' experience shows that technology had previously provided means of causing full employment and vastly increased production. We did not have them for a decade before, theoretically, because all the goods that could be produced could not be sold; actually, because many did not really try to sell them. Selling in the economy as a whole is *trading* each service or commodity for every other service and commodity. And when a private enterprise economy becomes unable to sell—i.e., trade—all it can produce, the main cause is adjustment of prices rendering it impossible for some industries, because their prices are relatively too low, to buy all that can be produced by others, because their prices are relatively too high—resulting in *depression in all.*

But how balance prices if in some industries they are fixed by competition and in others by monopolistic practices? How balance them if in some industries wages are low and fluctuating and in others are high and rigid? How balance them if some industries are government-subsidized, while others are not?

Private enterprise can function successfully only with strict and fair government regulation of natural monopolies; free competition—in prices as well as otherwise—within naturally competitive industries; no subsidies to any industry; and wages adjusted in accordance with rates and prices.

Who now wants private enterprise after the war *on these conditions?* Labor unions want monopoly-fixed, ever-higher, rigid wages. Most business men oppose free competition in prices—excepting in those they pay. Many farmers want subsidies for restricting their production. Carriers competing with the railways want subsidies to prevent equal competition. New Dealers favor government controls, "planning" and expenditures incompatible with private enterprise.

Why all the shooting about private enterprise if almost everybody opposes doing what is essential to maintaining it? The trouble is, so many don't understand that the nation, including them, cannot get all the advantages of private enterprise if many or all are to avoid its much smaller disadvantages. Excepting winning the war, the nation's greatest need is education in what private enterprise really is, and what must be done to make it work and survive. Lacking an effective educational effort for this purpose, we can win the war, and then, by losing private enterprise, lose the peace.

* A previous editorial on this subject appeared in *Railway Age* on July 25.

Post-War Aviation

It is accepted by many as a foregone conclusion that air transportation will become a serious rival of the railroads (as well as of trucks and water carriers) after the war, because of the technical and organizational development aviation is receiving as a by-product of our military effort.

Aviation, however, like highway transportation, is inherently an *adjunct* of a national transportation system. It cannot offer economical service for even a major part of transportation work. Like highway transportation, it is not self-sufficient; that is, it cannot haul its own fuel and remain an efficient carrier of other cargo. It cannot offer rates for the vast quantity of freight having a relatively low value per ton—which is but one way of saying that efficient railroad service is a pre-requisite to an efficient airplane industry. It is doubtful if planes could take over as much of the nation's work as some enthusiasts believe, without rendering impossibly uneconomical the manufacture of planes themselves.

Obstructionist opposition to transportation progress in the air will, and should, avail nothing. It is not in the national interest that a newcomer be repressed to protect "vested interests" in established forms of transportation. But neither will it serve the national interest for a newcomer to be politically expanded beyond the area of its "inherent" economy, to the needless injury of other essential transportation agencies.

Obviously, the national welfare requires that each task in transportation be assigned to the agency (plane, train, ship, truck, barge or pipeline) which can do it best, and that less essential agencies be not permitted to undermine the efficiency of agencies more essential to the national economy. Each segment of transportation (land, water or air) needs to be considered—not by itself—but as a part of a *national system* of transportation. This view was given legislative sanction by the Transportation Act of 1940; and the Board of Investigation and Research, established under that act, was directed, in effect, to discover means of putting that view into action.

Air transportation, however, was omitted from the purview of the act. Air transportation alone has its own particularistic regulatory agency—the Civil Aeronautics Board. This board has recently issued an order requiring a steamship company to divest itself of interest in an overseas air line—thus serving notice that, either as a matter of law or of administrative policy, aviation is *not* to be included as a part of a national system of transportation. The purpose appears to be to develop aviation independently—as a rival of all other transportation agencies, rather than, with them, as one of the components of a national system.

The brief of the railroads to the Transportation Study Board (See *Railway Age* of August 8, page 240), in behalf of authorizing the establishment of comprehensive transportation companies, represents the antithesis to the stand the C. A. B. has taken. Which is the correct view, in the national interest? If the order the C. A. B. has issued means that aviation, with all the impetus being given it by war development, is to operate as a rival rather than a complement to other transportation agencies, the approach to transportation problems required by the 1940 act is as good as nullified already.

Working for Government

The railway industry is now working for the government one-half of the time in more ways than one. Not only is fully one-half of its present service being rendered for war purposes; but the federal, state and local governments are taking in taxes about one-half of the net earnings left after paying its expenses.

The increases in traffic, gross earnings, operating efficiency, net earnings and taxes recently reported for the first six months of 1942 seem almost fantastic. Gross earnings of $3,281 million were the largest in the first half of any year. Operating expenses of $2,157 million continued lower than in the 'Twenties. The result was a ratio of operating expenses to earnings of only 65.8 per cent—lower than in any entire year excepting 1916, and comparing with ratios ranging during the last twenty years from 79.4 in 1922 to 68.5 in 1941. Net earnings from operation (after operating expenses and equipment and joint facility rentals) of $1,040 million were $280 million larger than the previous first half year's record made in 1929. But record taxes of $488 million made net operating income of $552 million (after taxes) $11 million smaller than in the first half of 1929, although larger than in the first half of any other year.

Taxes, as was to be expected, consumed larger parts of both gross and net earnings than ever before. Taxes increased from 3.2 per cent of gross earnings in 1908 to 5.3 per cent in 1917; from 5.4 per cent in 1922 to 7.3 per cent in 1931; from 8.8 per cent in 1932 to 10.2 in 1941; and in the first six months of 1942 were 15 per cent. Of net earnings divisible between the railway companies and the federal, state and local governments, these governments took an average of less than 14 per cent in taxes in the decade ending with 1917; over 26 per cent in the decade ending with 1931; almost 37 per cent in the depression decade ending with 1941; over 46 per cent in the first half of 1942; and 48 per cent in June.

The performance of the railways thus far in 1942 has afforded a remarkable demonstration of both their previously latent *carrying* capacity and *earning* capacity. The increase of 65 per cent in their gross earnings over the first half of 1940 was due entirely to increase in traffic handled, average freight and passenger rates being lower than in 1940. This increase in gross earnings being accompanied—in spite of advances in wages and prices—by an increase of only 43 per cent in ex-

penses there resulted an increase from $434 million in the first half of 1940 to $1,040 million in the first half of 1942 in net earnings from operation—demonstrating their great capacity for making net earnings.

But the $1,040 million net from operation in the first six months of 1942 had to be divided between the railway companies, as return on investment, and the federal, state and local governments, as taxes; and when the governments took $488 million of it in taxes, they took *$50 million more than the total net earnings from operation made* in the first half of 1940 and then divisible between the railway companies and the governments. Of the *increase* of $606 million in net earnings from operation in the first half of 1942 over 1940, increases in taxes took 49 per cent.

The Challenge

When four million of our men are in our armed forces, and their numbers are increasing daily, the responsibility for maximum effort in support of their activities by those who remain at home grows steadily. Our industries are rapidly being converted to war objectives—few more directly than the railways. As this transition continues, most activities will become concentrated more and more directly in support of our men in uniform.

This is bringing about a change in the point of view of the men in many plants. Instead of adhering to the trend so widespread in recent years of "soldiering" on the job, workers in an increasing number of plants are developing the point of view that they are backing up "their boys," and that these boys have a right to expect the utmost in production from them. This has even been carried to such a length that in some plants the men themselves post in the shops "slacker" lists of their associates who lay off unnecessarily, who fail to maintain the pace of their fellows.

Regardless of the lack of justifiability of their attitude heretofore, there is no longer any possible reason for workmen reducing their output to make places for other men; for there is today work for all—and more. In many industries the production of materials and services used in the war effort is limited only by the number of men who can be secured.

The challenge to maximum output is just as direct in railway service as in munition plants. The railways already are being taxed severely to move a record traffic with the expedition required by our military and essential civilian activities. The prospects are that the burden will continue increasing. If the railways are not to fail to meet all demands, every person in railway service, regardless of rank, must assume a very direct responsibility for concentrating on his *own* task.

The needs of the emergency are very real. They should be presented to every employee. This is a responsibility of management. It dare not neglect it; neither can it afford to so present it as to have its motives misunderstood. The war is a responsibility of all—of managers and employees alike. All are in the nation's service because the sons of all are in its service. The challenge is to all; but the principal responsibility of pointing the way belongs to management.

Scrap

One of the constructive developments growing out of the war emergency is the emphasis being placed on the collection of scrap metals as an aid to the maximum production of steel. The railways are normally among the largest users of steel. They are also among the largest users of scrap metals.

By reason of the variety of their operations and the wide area over which they extend, the policing by the railways of the use of steel and of the collection of the scrap resulting from it is unusually difficult. It is hard to draw an accurate line between materials held in reserve that are really usable and justifiably retained for emergency replacement needs, and those which have been held so long that they have become obsolete or forgotten. There is also difficulty in collecting the countless items that have dropped from equipment or have been thrown into the weeds along the right of way by careless workmen. Regardless of the cause, the amount of metals lost to sight in various ways runs into an unbelievable tonnage.

Railway managements have been aware of this for years, and virtually all of them have conducted scrap collection campaigns from time to time with excellent results. Heretofore, these campaigns have been prompted by motives of economy and efficiency; but these motives are now supplemented by another—that of urgent national necessity.

In the past, such activities often have been limited by the cost of recovery, as for illustration in the excavation of abandoned pipe lines. This motive is still impelling but not necessarily governing, for a railroad is now warranted in going considerably further in recovering materials needed but elsewhere unobtainable, as well as to release them for remelting.

The problem requires a new approach throughout the entire railway organization. It calls for further surveys to determine the necessity of retaining minimum traffic branch lines, not primarily with a view to eliminating operating losses but to securing sorely needed rail and fastenings for tracks in war industries; it demands study by local division officers of idle or seldom-used spur tracks and sidings, as well as buildings; it challenges the alertness of every employee in the shop and on the track to uncover and recover a bolt, a tie plate, a brake shoe or a broken part, no matter how small.

The results attained by roads that have conducted special campaigns to bring such materials to light since the present emergency arose has surprised even their most ardent advocates. Equal results are possible on other roads.

New Transportation Corps

Is Established by the Army

U. S. Army Signal Corps Photo

General Gross

Will absorb duties of Transportation Service and take on "new and broader activities"

WASHINGTON, D. C.

CREATION of the Army Transportation Corps of the Services of Supply, "to co-ordinate, direct, and speed the flow of men, equipment and supplies into the war effort" was announced by the War Department last week. The Transportation Corps, which absorbs the functions of the Transportation Service and undertakes "new and broader activities," is headed by Brigadier General Charles P. Gross while the deputy chief is Brigadier General T. H. Dillon, both of whom occupied similar positions in the superseded Transportation Service. Brigadier General Gross was nominated by the President to be a Major General a few days afer he was given command of the new Corps.

Will Recruit Specialized Personnel

The new Corps, with an organizational status paralleling generally that of the Corps of Engineers and the Quartermaster Corps, is designed "to provide the necessary qualified personnel to meet the problems of transportation in warfare." In that connection it was pointed out that the Transportation Service was dependent for personnel upon officers and enlisted men assigned from other arms and services, many of them coming from the Quartermaster Corps. Under the new program the Transportation Corps will operate its own replacement and unit training center for enlisted men. It will obtain additional officer personnel from civilians newly commissioned in the Army and from the Officer Candidate Training Schools of the Services of Supply. "This," said the War Department announcement, "is expected to provide necessary permanent personnel especially skilled in the transportation field, and eliminate the necessity of depending on untrained personnel or those detailed only temporarily to the work from other arms and services."

The Chief of Transportation in the new Corps, i. e., Brigadier General Gross, the announcement also explained, "is in effect the traffic manager of the War Department for rail, water, and highway shipments of all types. He is responsible also for operations of all field establishments pertaining to these forms of transportation. These include ports of embarkation, port agencies, transportation agencies, holding and reconsignment points, and regulating stations."

The Transportation Service had been charged with direction, supervision and co-ordination of all transportation functions of the War Department. It was formed from part of the personnel and functions of G-4 (Supply Division of the General Staff), the Transportation Division of the Office of the Quartermaster General, ports of embarkation, staging areas, and reconsignment stations for overseas shipments. Under the new set-up, railhead companies, port headquarters, and port battalions, all under the previous jurisdiction of the Quar-

The Insignia of the New Corps Symbolizes All the Agencies of Transportation

U. S. Army Photo

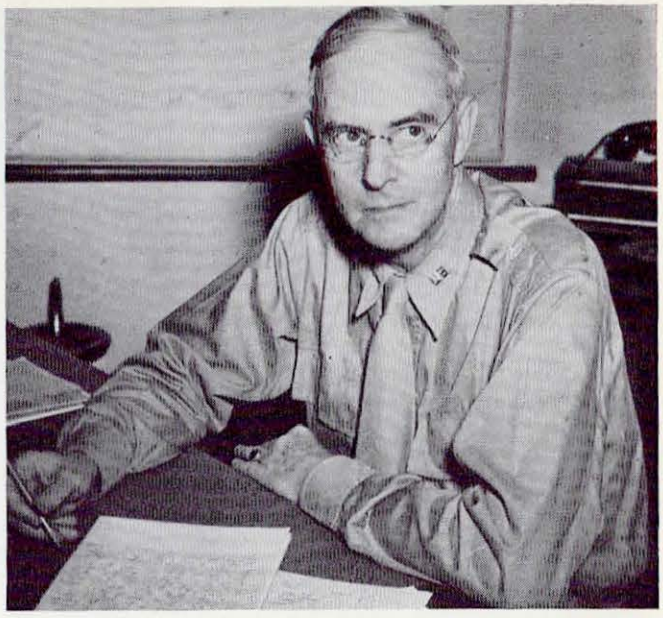
termaster Corps, become part of the Transportation Corps. All transportation units will be activated by the Services of Supply. Other functions of the Corps provide for assignment of transportation officers to duty at Service Commands, ports, camps and stations, to staffs of tactical units and as transportation officers for the other services.

Present Officers Retained

Officers and warrant officers who were serving with the Transportation Service are assigned to duty with the Transportation Corps without losing their arm or service affiliations. Enlisted men assigned to units and installations of the Transportation Service are transferred to the new Corps. For the present, all officers and warrant officers detailed or assigned to duties as "transportation officers" will continue under the commander who appointed them "until the Chief of Transportation arranges for their detail in or assignment to duty with the Transportation Corps, or designates an officer of the Corps to relieve them."

The Corps will have distinctive insignia, symbolizing rail, highway and water transportation. The official insignia will be gold-colored metal, consisting of a winged railroad car wheel, symbolic of railway transportation, flanged on a rail and charged on a shield placed upon an eight-spoke ship's steering wheel. The shield, fashioned after the country's federal route markers, represents highway transportation and the ship's wheel, water transportation. The insignia will be worn by both officers and enlisted men, the officers as a cut-out and the enlisted men's mounted on a disc. The newly adopted colors of the Corps are brick red piped with golden yellow. They will appear on the garrison caps of enlisted personnel, and be used on guidons and other symbols of the corps. The new insignia will be the first to be worn in the Army denoting transportation activities. While approval was given in 1919 of insignia for the then existent Transportation Service, it was never worn, because on June 4, 1920, Congress adopted an amendment to the National Defense Act placing Transportation and Motor Transport Services under the Quartermaster Corps.

Discussing the new set-up with newspaper men on August 7, Brigadier General Gross took occasion to reiterate his previously-expressed concern lest the railroads may not be given materials for equipment sufficient to handle traffic demands. As noted in the *Railway Age* of June 27, page 1248, the General recently told a House appropriations subcommittee that the carriers cannot go on forever without additions and replacements. In his comment of the 7th, he said the railroads, having expanded their operations greatly, are rapidly approaching the point where they need more steel. One of the Army's critical problems is the flow of troops and supplies to the ports; and the main reliance is on the railroads.



U. S. Army Photo

General Dillon

General Charles P. Gross

General Gross was born in Brooklyn, N. Y., on March 14, 1889. After graduation from the United States Military Academy in 1914, he was commissioned a second lieutenant in the Corps of Engineers on June 12, 1914. General Gross was promoted to first lieutenant on Feb-

*What General Gross Says of Railroads' Service to the Nation at War**

"The railroads need steel. Every war agency seems to require more than it is getting. But in order to make one ton of steel, the railroads must haul five tons of ore, coal, coke, limestone and other essentials for its manufacture. To get the steel, the railroads must be able to play their essential part. They must be geared to the full, all-out war effort of this nation as a vital element of the team. . . .

"The railroads have met the startling increases in traffic since 1939 largely by using their reserves rather than by additions to their equipment. They have used existing equipment more intensively with increasing co-operation between companies. They have reduced their unserviceable units and brought them into use. They have loaded cars more completely. This reserve capacity in heavier loading, in blocking through solid trains and in unification of effort is not exhausted, but there is far less fat left. The additional loads that are coming in 1943 must, therefore, be met to a greater degree by new equipment.

"In the war effort, no group, no agency works more wholeheartedly, more energetically to fulfill the war mission than do the railroads and their national organization, the Association of American Railroads. Their team play has been superb. They respond to the War Department immediately and to their full capacity. My relationship with them has been one of the most heartening experiences I have had. The railroads have the spirit that will win this war."

* From a Radio Address on August 13.

ruary 28, 1915; to captain on May 15, 1917; to major (temporary) on August 5, 1917; to lieutenant colonel (temporary) on August 23, 1918; and to colonel (temporary) on November 3, 1918. He reverted to his permanent rank of captain on October 6, 1919, and was promoted to major on July 1, 1920; to lieutenant colonel on August 1, 1935; to colonel (temporary) on June 26, 1941; and to brigadier general (temporary) on March 11, 1942.

General Gross' first assignment was with the 2nd Engineers at Texas City, Texas. He was transferred to the Engineers' School, Washington, D. C., in September, 1915, serving there until June 1917, when he went to Vancouver Barracks, Wash., for duty with the 4th Engineers. In January, 1918, he was assigned to the 318th Engineers at that post and went to France with that unit in April, 1918. He served in the occupation of the Gerardmer Sector between September 1 and October 11, 1918, and in the Meuse-Argonne offensive between November 1 and 11, 1918.

Fortified Long Island Sound

General Gross returned to the United States in June, 1919, and was stationed at Camp Grant, Ill., until he was ordered to the District Engineer's Office in New London, Conn., on August 22, 1919, to take charge of fortification work on the coast defenses of Long Island Sound. In October, 1920, he was assigned to Camp Humphreys, Va., as commanding officer of the 13th Engineers. General Gross returned to the United States Military Academy in July, 1922, as an instructor, and in August, 1926, was relieved from there to enter the Command and General Staff School, Fort Leavenworth, Kan., from which he was graduated in June, 1927. He then was transferred to Los Angeles, Calif., as district engineer.

In July, 1929, General Gross returned to Fort Humphreys as commanding officer of the 29th Engineer Battalion, and in October, 1929, he went with that unit to Nicaragua where he supervised the field work on the Nicaraguan Canal survey. He was sent to Washington, D. C., in August, 1931, to enter the Army War College from which he was graduated in June, 1932. In August, 1932, General Gross was assigned to duty with the Operations Officer, G-3, of the War Department General Staff. He was named director and instructor of the Department of Tactics in the Engineer School at Fort Belvoir, Va., in August, 1936. In August, 1939, General Gross again went to Nicaragua for survey work on canals and highways. Upon his return in November, 1939, he was assigned to Rock Island, Ill., as district engineer.

The general returned to Washington in March, 1941, as chief of transportation in the Supply Division G-4, of the War Department General Staff. He was a member of a Special War Supply Mission which went to Russia in September, 1941. When the Services of Supply was organized in February, 1942, he became chief of transportation in that section, with headquarters in Washington, D. C. General Gross was awarded the Purple Heart for bravery in the Gerardmer Sector in 1918.

General Theodore H. Dillon

General Dillon was born in Center Valley, Ind., on January 16, 1883, and following graduation from the United States Military Academy, was appointed a second lieutenant, Corps of Engineers, on June 15, 1904. He was promoted to first lieutenant on September 26, 1907; to captain on February 27, 1911; to major on May 15, 1917; to lieutenant colonel (temporary) on August 5, 1917; and to colonel (temporary) on February 1, 1918. He resigned from the Regular Army on September 30, 1919, and accepted a commission as colonel in the Engineer Reserve; and was promoted to brigadier general (temporary) on February 5, 1942.

Builder of Canals and Roads

General Dillon first served on various Engineer Corps assignments and was graduated from the Engineer School, Washington, D. C., in 1907. He served a three-year tour as assistant to the officer in charge of military mapping in the Philippine Division from November, 1909, until March, 1912. His next duty was in command of a company of engineers at Fort Leavenworth, Kan., until February, 1913, and at Galveston, Texas, until April 26, 1913. He then was given charge of construction of the Dalles-Celilo Canal in Oregon, and of roads in the Crater Lake National Park, Ore., until April, 1915.

From May, 1915, to February, 1918, he was superintendent of the Gatun Locks and electrical engineer in the Panama Canal Zone.

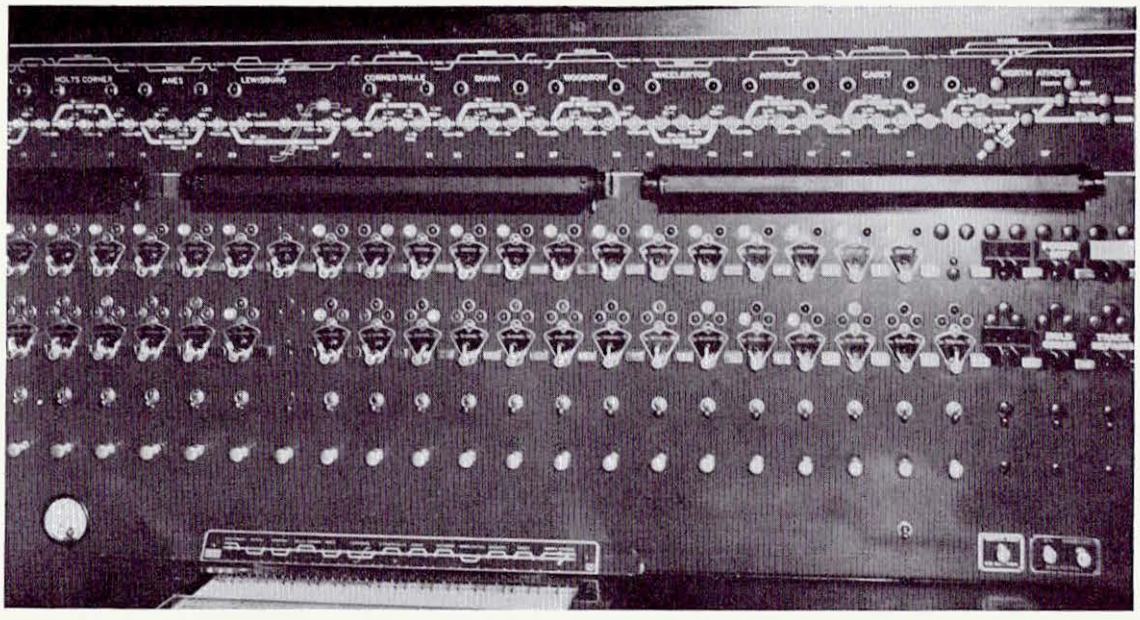
General Dillon organized and commanded the 37th Engineers which was the Engineer Corps Electrical and Mechanical Regiment, in February, 1918, at Fort Myer, Va., and sailed for France with this regiment on June 30, 1918, being assigned to Neuf Chateau in the Vosges Area on July 14, 1918. He was the assistant chief engineer of the First Army and commanded the 37th Engineers at La Ferte, and during the St. Mihiel and Meuse-Argonne offensives, until December 7, 1918. He was awarded the Distinguished Service Medal for this service.

He then was made deputy chief of the War Damage Board and placed on duty with the American Peace Commission from December, 1918, until July 31, 1919. His activities in this period also included work as a member of the Central Geographical Commission of the Peace conference and as a member of the subcommittee of the Interim Reparation Commission. He returned from France on August 13, 1919, and served until September 30, 1919, in the United States Engineer Office in Boston, Mass., resigning from the Army on that date.

At M.I.T. and Harvard and in Business

Entering civilian life, General Dillon was professor of electrical engineering in the Massachusetts Institute of Technology, in charge of the Departments of Electrical Railways and Power Transmission from 1919 until 1923. For the following two years he was professor of public utility management in the Graduate School of Business Administration of Harvard University. He then became division manager and assistant to the president of the United Fruit Company, Boston, Mass., where he remained for 10 years through 1936. For the next three years he engaged in mining in South America, returning to the United States in 1939 to become director of the Office of Publications and Public Relations for the Carnegie Institute, Washington, D. C. On March 25, 1941, the War Department announced his appointment as chief of the transportation division of the Office of the Quartermaster General, Washington, D. C. On March 21, 1942, he was assigned to the Training Division, Services of Supply, Washington D. C.

C. T. C. Expedites War Traffic on the Louisville & Nashville



The C. T. C. Machine, Located at North Athens, Controls 22 Power Switches and 48 Semi-Automatic Signals

Serious train delays relieved on 92-mile single-track line which moves 30 to 35 trains daily—Eight passing tracks are removed

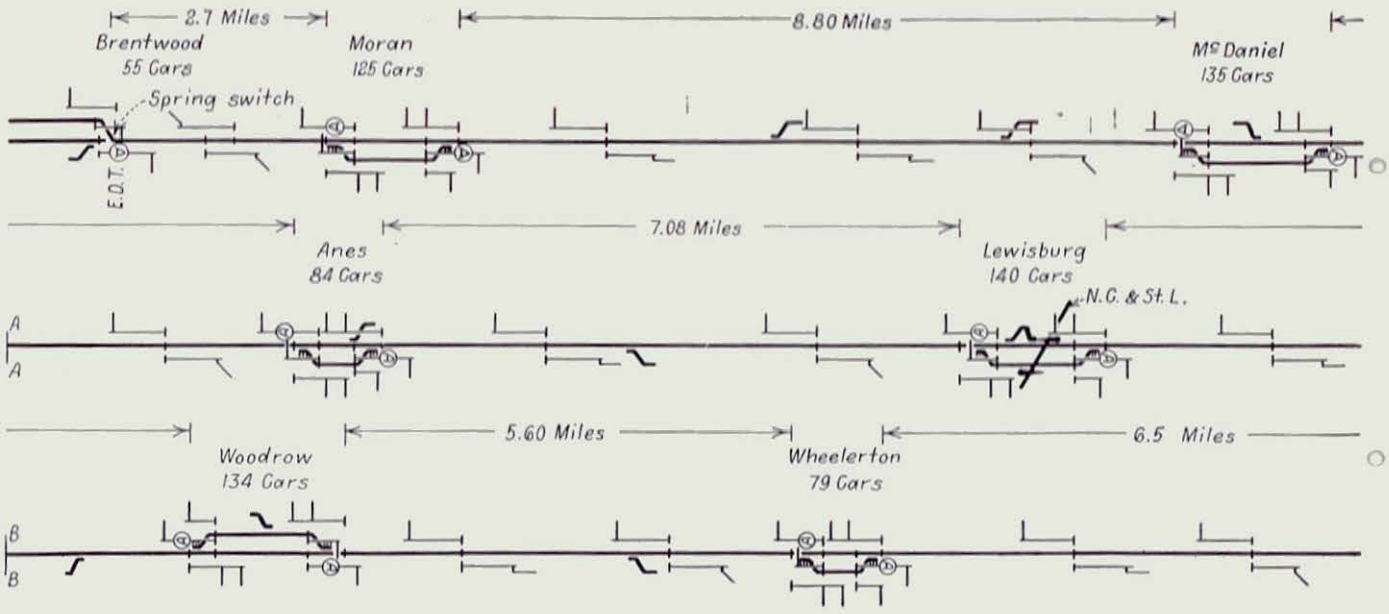
As a means for increasing track capacity and expediting train movements, the Louisville & Nashville has installed centralized traffic control on 92 miles of single-track main line between Brentwood, Tenn., and North Athens, Ala., via Lewisburg. This territory is a portion of the division between Nashville, Tenn., and Birmingham, Ala. From Nashville south to Brentwood, 11 miles, and from North Athens south to Birmingham, 99 miles, the line is double track. Between Brentwood and North Athens, the L. & N. has two widely separated single-track lines. The original line via Columbia, includes numerous heavy grades, and, for this reason, no through freight trains are operated on this line. The second line between Brentwood and North Athens via Lewisburg was completed in 1914. It has light curvature and low grades, so that it is adaptable for the operation of through freight and passenger trains.

The new line was built through rolling hilly country, so that only approximately two miles of the entire 92 miles is level track. The ruling grade southbound, ranging from 0.76 per cent to 0.9 per cent, extends for about six miles between Wheelerton and Ardmore. Northbound, a grade not exceeding 0.4 per cent extends for about 10 miles between Woodrow and Diana Tunnel. Otherwise the grades are short and do not exceed 0.4 per cent. Based not only on the ruling grade but also on coal consumption between coaling stations, the tonnage southbound is limited to about 2,200 tons. Based on coal consumption, the tonnage northbound is limited to about 2,850 tons. High-ball merchandise or perishable freight trains handle 55 to 60 cars, and other freight trains handle up to 80 cars. For the most part, the curvature is light, exceptions being four 4-deg. and thirteen 3-deg. curves. Speeds are limited to 70 m.p.h. for passenger trains, and to 45 m.p.h. for freight trains.

Up to 40 Trains Daily

The schedules include two passenger trains each way daily, in addition to the "South Wind" which is operated every third day. Only a few of the more important merchandise freight trains, such as the "Silver Bullet," are scheduled, the remainder being operated as sections and extras. During recent years, train movements on this line have averaged about 14 to 16 daily. During 1941, however, the traffic increased to such an extent that two or more extra sections of passenger trains and 10 or more extra freight trains were handled, increasing the total trains handled to 25 or 30 daily.

With such traffic, the practice of authorizing train movements by time-tables and train orders without automatic signaling became entirely inadequate. These movements on this territory are not evenly distributed throughout the 24-hour period, but about half of the trains are bunched during the second trick. In some instances, as many as 8 to 10 trains may be on the 92 miles of line between Brentwood and North Athens at one time. As a result, in many cases, trains were delayed on passing

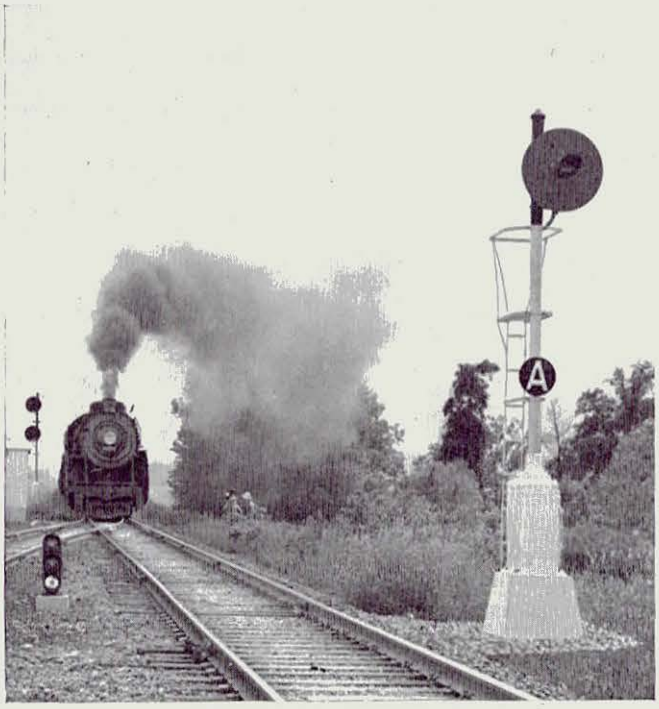


Track and Signal Plan of the Centralized Traffic Control

tracks, for an hour to as much as three hours, because there was no means for changing orders quickly to take advantage of the progress actually being made by other trains.

C.T.C. Installed

An analysis of the situation led to the decision to install centralized traffic control, including power switch machines as well as signals for authorizing train movements, superseding time-tables and train orders. In this installation 22 power switch machines at the ends of the passing tracks, as well as the semi-automatic signals at these switches and at the two ends of double track, are controlled by a two-wire line coding system from a C. T. C. control machine at North Athens. This machine is manipulated by an operator, known officially as the train controller, who works under the direction of the dispatcher at Nashville. The illuminated diagram on this machine is equipped with lamps to indicate the presence of trains on all sections of the main track throughout the entire 92-mile territory.



Power Switch Machine and Complete Signaling Are Provided at Each Passing Track

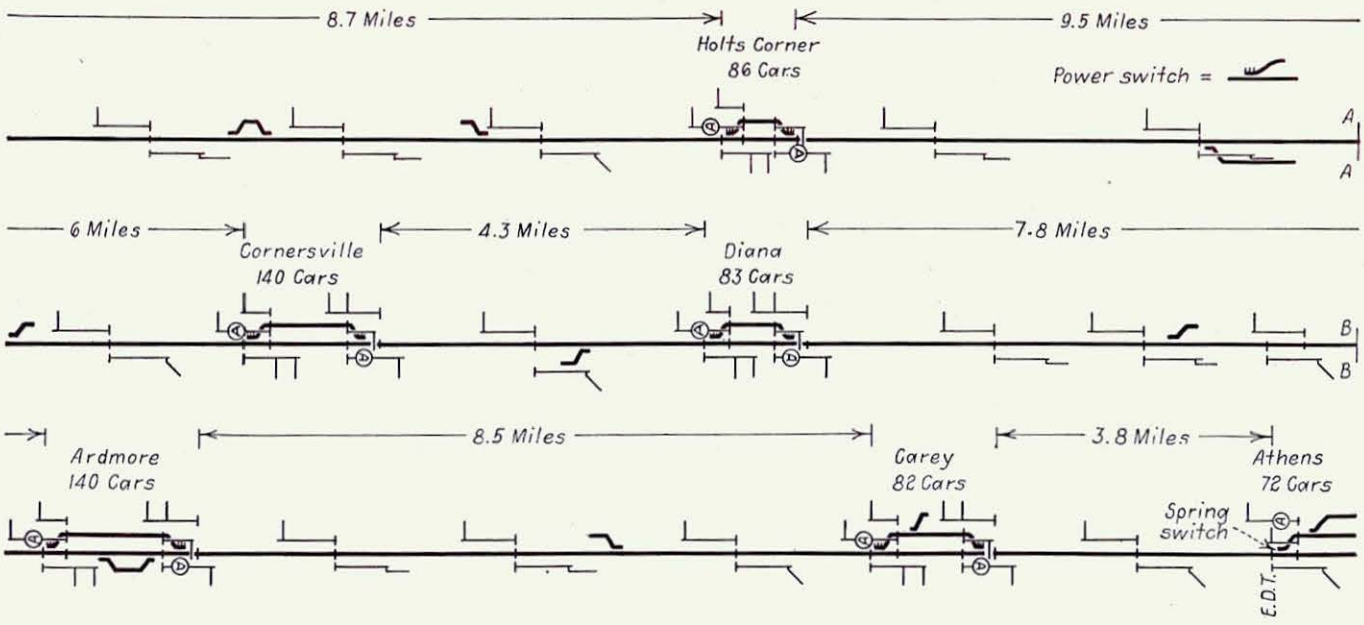
The machine also includes an automatic train graph with 24 pens which indicate when a train enters and departs from the OS track circuits at the 22 power switch locations and the 2 ends of double track. By drawing lines on the graph paper to connect these indication points, a record of train movements is made; furthermore, from this graph the train controller knows the location of trains on the main track as well as on the passing tracks. When a train enters a passing track, the train controller places a small "Northbound" or "Southbound" fiber tag on a hook located at the symbol for that passing track on the track diagram of the control machine. By this means he has a constant reminder of the trains which are on passing tracks.

Benefits Realized at Once

During April and May, the traffic continued to increase to a total of 30 to 35 trains each day, and delays became worse until the C. T. C. was completed and placed in service on June 1. Since that time, tonnage freight trains are getting over the line more quickly, thus reducing the number of meets with other trains.

The train time saved may be divided into two catagories. The power switch machines permit a tonnage train to save 6 to 8 minutes when entering a passing track and about 8 minutes when departing from a passing track. For this reason, trains can be advanced on shorter time for meets. Also, time is saved by advancing trains whenever an idle section of track is available when otherwise they would have waited for extended periods on passing tracks because their train orders could not be changed.

Fewer stops are required for water, and the tonnage can be increased where the limit was fixed previously by the coal capacity of the tenders. An important factor



Territory Between Brentwood and North Athens

with reference to the scheduled freight trains is that they are delivered to the yards sooner, so that more time is available for switching, thereby insuring on-time departures. The availability of the locomotives is also increased.

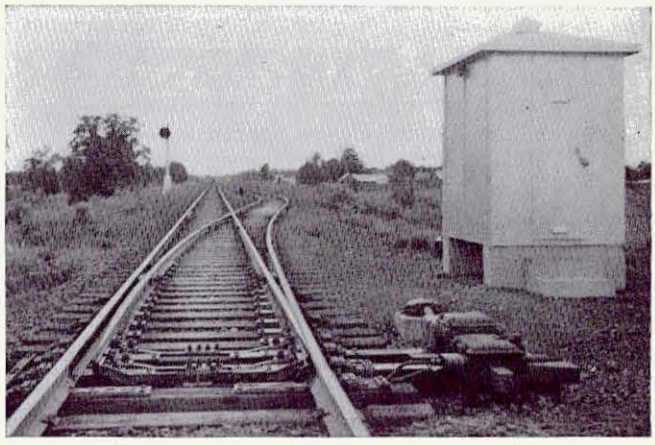
Eight Passing Tracks Taken Out of Service

Prior to this improvement program, there were 19 passing tracks between Brentwood and Athens, and, with certain exceptions, these sidings were spaced about 3.5 to 4 miles apart. Since fewer passing tracks would be required with C. T. C., 8 of the passing tracks were taken out of service as such. Three of them were removed, while at five locations, one main track switch and parts of the siding were left to serve freight houses or industries.

At Cornersville and Ardmore, crossovers between the main line and the passing tracks, midway of the lengths of these passing tracks, were removed. At one end of each passing track, the passing track was thrown over to 19-ft. centers with the main track to provide clearance for the station-entering or station-departure signal, as the case might be. Thus all signals are at the immediate right of the track governed. The passing tracks which were left in service, as well as the car capacities and the spacings, are shown on the diagram.

The turnouts at the ends of the passing tracks are No. 10, but these are to be replaced with No. 12 turnouts as soon as practicable, so that the speed, when making diverging train movements, can be increased to at least 25 m. p. h. The signals are so located that they need not be moved when the longer turnouts are installed. The new equipment installed at these 22 ends of passing tracks included dual-control electric power switch machines. At North Athens, the power switch machine and signals formerly connected with the end of double track together with 16 levers of the electric interlocking at that point, were removed, and a spring switch mechanism was installed at this end of double track.

At Lewisburg, where a branch of the Nashville, Chattanooga & St. Louis crosses the L. & N., a mechanical interlocking was replaced with crossing gates. Normally these gates stand across the N. C. & St. L. track and when an N. C. & St. L. train approaches, the operator at Lewisburg telephones to the train controller at North Athens, and, if no L. & N. trains are approaching, is directed to operate the gates. Each gate is equipped with an electric lock. When the operator opens the door of a lock case, an indication is sent to the train controller, and if no L. & N. train is approaching Lewisburg, he sends out a code which releases the electric lock.



A Power Switch and Signals at the South End of the Ardmore Passing Track

The high signals are the H-2 searchlight type; the single-unit signals, as well as the top unit on the station-entering signals, display three aspects, red, yellow and green. The bottom unit of a station-entering signal displays red normally, or a yellow light under a red in the top unit to direct a train to enter the passing track with the power switch reversed. The signals for directing trains to leave passing tracks are color-light dwarfs which normally display a red aspect. When a switch is reversed and a train is to depart, a yellow aspect is displayed if only one automatic block is unoccupied, while a green aspect is displayed if two or more automatic blocks are unoccupied.

The station-entering signals are designated as absolute signals by the two signal units. The station-departure

signals are designated as absolute signals by the addition of an "A" marker mounted on the mast 7 ft. below the signal unit.

Between the C. T. C. machine and the respective field locations, the controls of signals, power switches, electric gate locks and maintainers' call lamps, as well as the return of indications to the control machine concerning the position of switches, aspects displayed by signals and outages of a-c. supply, are handled by a two-wire, time-coding system, the coding equipment being arranged for a maximum of 35 field stations either side of the C. T. C. machine.

If a semi-automatic signal is cleared by C. T. C. control, and the man in charge of the control machine then "takes away" the aspect before a train accepts and passes that signal, none of the switches or opposing signals involved can be operated for four minutes. This time locking is accomplished automatically at the field locations by time-element relays. When the time-locking is in effect at a power switch, the indication lamps on the control machine associated with this switch and the signals at that location, are extinguished.

The semi-automatic signals operate "stick"; in other words, if a signal is to be cleared for a second train, the train controller must send out another control. When a train passes a semi-automatic signal, it is controlled automatically to display the Stop aspect, and the train controller does not have to send out a code to cause the field control apparatus to assume normal condition.

The intermediate signals are arranged as double locations, except that in two instances the signals of a pair had to be located separately in order to provide longer approach views due to curves. Where the total distance between any two passing tracks could be divided into units of approximately two miles the intermediate signals were spaced about two miles, but where the total distance was about seven miles, for example, two of the automatic blocks are two miles each, and the remaining block is nearly three miles long. In such instances, the two-mile blocks are adjacent to the passing tracks, and the longer block is in the middle of the overall station-to-station block. This arrangement places the shorter blocks where they are of advantage in timing trains into and out of passing tracks with minimum delay either to the train approaching a station for a meet, or to a second train departing after another train in the same direction.

Conventional d-c. track circuits with 2-ohm relays are used for the track controls of two highway crossing signals, and the same type of track circuits are used for the short detector track circuits at the power switch and the spring switch locations. Between passing tracks, the track circuits are of the coded-detector type. Approximately two miles was fixed as the maximum length for these coded track circuits, and in 12 instances, where the distance between signals is more than 12,000 ft., a repeater cut section was installed. In each instance, these coded track circuits are fed at the north end.

With no train in a station-to-station overall block, and no office control in effect, code at the rate of 180 per minute is fed to the rails at the north end of the station-to-station block and is repeated through the various track circuits to the other end. At the receiving end, the incoming 180 code causes an indication to be sent to the office to show that the station-to-station block is unoccupied. When any track circuit is occupied, the code on the successive track circuits to the south is changed from 180 to 120. At the south end of the station-to-station block, the 120 code causes a "block-occupied" indication to be transmitted to the control office. This feature obviates the need for line wires between the field stations at the sidings and the relays of intermediate track circuits, to repeat track-occupancy indications of the intermediate track circuits.

These coded track circuits serve to detect the presence of trains on track circuits and to cause indications to be sent to the office concerning track occupancy of the station-to-station block as a whole. The codes are not used, however, to cause a difference in controls to display the Approach or the Clear aspect, this form of control being accomplished by a line wire circuit.

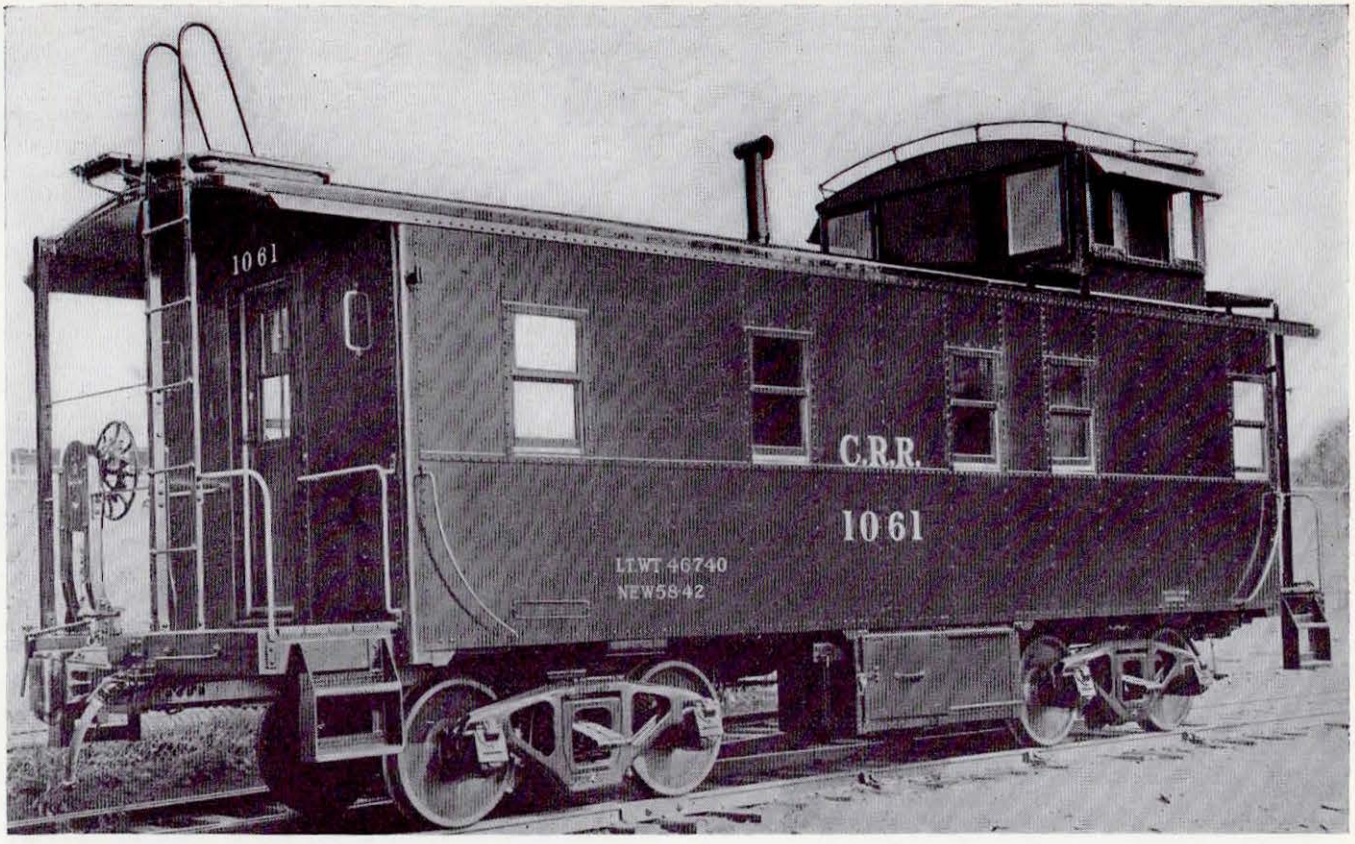
The signals for one direction or the other between two passing tracks are controlled by one two-wire line circuit which is controlled through code repeater track relays in the usual manner. Absence of code or steady energy in the track circuits causes track repeater relays to be released, thus opening the line circuit and causing the controls to be set up for the display of the most restrictive aspects of the signals. Coded energy at either 180 or 120 per minute energizes track relays which close contacts in the line control circuit in the same manner as if conventional track relays were used.

This C. T. C. project was planned and installed by signal forces of the Louisville & Nashville, under the direction of W. H. Stilwell, signal engineer and P. P. Ash, assistant signal engineer. In contrast with the usual practice of placing short sections in service when completed, the C. T. C. on the entire 92 miles was cut into service between noon and 1 p. m. on June 1. The signaling and C. T. C. equipment was furnished by the Union Switch & Signal Company.

* * *

The N. H. Is Proud of Its Conductors

In the "Rider's Digest"—publication distributed to its passenger patrons—the New Haven presented a description of the conductor's duties and featured some of its employees in that category on the front page of the periodical.



New Clinchfield Caboose Built by the American Car & Foundry Co.

More Comfort for the Train Crews in Clinchfield Cabooses

Design of new cars built by the American Car & Foundry Company features convenient arrangement of facilities

PARTICULAR attention has been directed to the comfort and convenience of the train crews in the design of seven steel caboose cars recently placed in service by the Clinchfield. The cars, built by the American Car and Foundry Company, are 35 ft. 2¾ in. in length over striking plates and the light weight is approximately 46,750 lb. The inside length is 28 ft. 4⅞ in., and the width inside 8 ft. 10⅞ in.

The underframe is fabricated from steel plates and rolled sections, assembled by welding and riveting. No special dies were required for the pressings. The center sill consists of two A. A. R. Z-26 sections weighing 36.21 lb. per ft. which extend for the full length of the car, the top flanges being joined by welding. The design of other underframe members embodies ample strength for service conditions.

The superstructure is of copper-bearing steel assembled by riveting. The outside sheathing is of No. 12 gage copper-bearing-steel sheets. The outside roof is No. 13 gage copper-bearing galvanized-steel riveted to the carlines and the other framing members.

The car is double floored with two courses of $^{13}/_{16}$-in. tongue-and-groove yellow pine, both laid longitudinally, with a layer of ½-in. Insulite insulation coated with waterproofing compound between the two floors. The ½-in. insulation is also applied between the body and cupola lining and framing, and between the ceiling sheets and the framing.

The end platforms are wider than usual, extending the full width of the car to the radius of the corner post. At each side of the platform is an all-welded two-tread steel step. The treads are of non-slip floor plate, 6 in. wide. In addition to the usual platform hand rail there is an extra safety crossbar between the ladder support and post which extends to the platform roof.

The body and cupola sash are of wood. The body sash is in two parts, the upper part stationary and the lower part movable. The cupola sash is of the sliding type. The end doors are of wood construction. The hinged sash at the bottom folds into a steel guard placed on the inside lower face of the door. A galvanized steel awning shades the cupola side windows. Under the car is an equipment box which has a sliding door.

The inside lining and ceiling is No. 16 gage copper-

Interior of Clinchfield Railroad Caboose Looking toward the Cupola End

bearing steel, while the interior partitions and lockers are of tongue-and-groove yellow pine. In one corner of the car is a conductor's locker, opposite which is a toilet room with a dry hopper. Adjacent to these is the cupola space with lockers and a refrigerator. Next to the cupola space on one side of the car is a removable table which has hinged locker seats on each side. Adjoining these are the wash basin, water tank and water cooler. On the opposite side of the car, next to the cupola space, are the stove and coal box, conductor's desk with lamp and chair, wardrobe, and one bunk. Two bunks are installed on the other side of the car. The bunks, arranged with hinged tops to provide storage space beneath, have 3-in. thick cushions upholstered in imitation leather. The cupola seats also have 3-in. thick cushions.

The trucks are of the four-wheel swing-motion type, with Bettendorf cast-steel side frames, having journal boxes cast integral, cast-steel bolsters and transoms, cast-steel swing hangers, and ⅜-in. pressed-steel spring planks. Elliptic truck springs are used. The wheels are chilled-tread, 33 in. dia., with treads ground after mounting on the axles which have 4¼-in. by 8-in. journals. The side bearings are the Stucki roller type.

The cars are equipped with AB freight-car brakes furnished by Westinghouse, and, at each end, with Ajax vertical wheel-type geared handbrakes. National Type E couplers, cast-steel yokes, and Miner friction draft gear, Type A-22-XB, are used.

The sides and ends of the cars, outside, are finished with two coats of bright red enamel, stenciled in white, in accordance with the railroad's standard practice. The roofs and trucks are painted black. Interior walls, ceilings, and fittings are enameled in silver gray, and the floor is finished in a slate color.

Living, Working and Sleeping Accomodations Are Well Arranged in New Clinchfield Cabooses

Railroad Construction Indices for 1941

WASHINGTON, D. C.

THE Engineering Section of the Interstate Commerce Commission's Bureau of Valuation has issued its Railroad Construction Indices for 1941, showing that railroad construction costs "were up in 1941 and are continuing their upward trend in 1942." Based as usual on the 1910-1914 costs as 100, the 1941 index for the country as a whole was 165, an advance of 12 points or 7.3 per cent over the preceding year, and 32 points above the 1933 post-war low of 133. The peak was reached in 1920 when the index stood at 226.

In an accompanying statement I. C. C. Secretary Bartel declared that the indices are "unique in that, while other construction indices generally are limited to coverage of a few items or types, or localities, the railroad construction indices cover the cost of thousands of items of construction and construction costs in an industry that penetrates all parts of the country and draws on all types of material and labor."

Furthermore, the compilation's "General Notes" point out that the indices "represent territorial index factors and are of value in indicating trends. They are not necessarily applicable for use in the determination of reproduction costs upon individual railroads . . ." The general indices for the country as a whole (given in the accompanying tabulation) are broken down in the Bureau's compilation into eight regional sets.

In his notice Mr. Bartel called attention to the fact that the increases were practically uniform in the eight regions and that they are principally attributed to higher timber and steel prices. The indices reveal that the only item that costs less in 1941 than in 1909-1910 was grading. In 1941 the index for this account stood at 99, one per cent less than during the basic period when grading was done by the use of horses, scrapers, and wheelbarrows.

The accounts for which the indices are shown are the several primary accounts designated in the Classification of Investment in Road and Equipment of Steam Roads, dated July 1, 1914. These accounts, shown by their numbers in the tabulation, are as follows:

I—ROAD:

1. Engineering
3. Grading
4. Underground Power Tubes
5. Tunnels and Subways
6. Bridges, Trestles, and Culverts
7. Elevated Structures
8. Ties

9. Rails
10. Other Track Material
11. Ballast
12. Tracklaying and Surfacing
13. Right of Way Fences
14. Snow and Sand Fences and Snowsheds
15. Crossings and Signs
16. Station and Office Buildings
17. Roadway Buildings
18. Water Stations
19. Fuel Stations
20. Shops and Engine Houses
21. Grain Elevators
22. Storage Warehouses
23. Wharves and Docks
24. Coal and Ore Wharves
25. Gas Producing Plants
26. Telegraph and Telephone Lines
27. Signals and Interlockers
28. Power Dams, Canals, and Pipe Lines
29. Power Plant Buildings
30. Power Substation Buildings
31. Power Transmission Systems
32. Power Distribution Systems
33. Power Line Poles and Fixtures
34. Underground Conduits
35. Miscellaneous Structures
36. Paving
37. Roadway Machines
38. Roadway Small Tools
39. Assessments for Public Improvements
40. Revenues and Operating Expenses During Construction
41. Cost of Road Purchased
42. Reconstruction of Road Purchased
43. Other Expenditures—Road
44. Shop Machinery
45. Power Plant Machinery
46. Power Substation Apparatus
47. Unapplied Construction Material and Supplies

II—EQUIPMENT:
51. Steam Locomotives
52. Other Locomotives
53. Freight-Train Cars
54. Passenger-Train Cars
55. Motor Equipment of Cars
56. Floating Equipment
57. Work Equipment
58. Miscellaneous Equipment

III—GENERAL EXPENDITURES:
71. Organization Expenses
72. General Officers and Clerks
73. Law
74. Stationery and Printing
75. Taxes
76. Interest During Construction
77. Other Expenditures—General

Regions I to VIII, Incl.

Tabulation of Indices by Years and by Accounts
Applicable to the Entire United States

Acct.	*Per Cent	1915	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38	'39	'40	'41
ROAD																												
1	2.83	101	110	134	159	178	214	175	157	171	171	166	166	164	161	160	152	143	131	127	131	131	133	142	138	137	140	151
3	18.19	100	110	130	165	190	250	170	143	160	164	149	153	143	135	133	123	118	106	98	100	101	99	103	93	90	90	99
4																												
5	1.51	103	109	128	150	183	208	179	165	179	179	179	178	169	155	155	143	130	119	111	122	120	130	139	141	140	149	160
6	9.41	105	111	146	162	178	206	165	160	176	173	171	170	168	164	163	150	134	122	122	136	135	141	155	150	149	156	174
7	0.04	102	124	169	177	184	210	150	153	173	171	168	165	163	163	162	154	144	129	122	136	136	137	158	150	149	159	175
8	5.58	100	100	112	133	170	201	189	157	177	175	172	173	175	176	175	170	155	144	139	149	147	150	159	154	158	164	181
9	8.57	101	106	121	148	152	168	158	144	145	145	144	144	144	144	144	144	144	140	134	123	123	124	143	139	136	138	139
10	3.39	99	129	198	210	203	209	192	161	182	179	177	177	177	177	170	169	165	163	158	150	147	150	169	169	167	167	170
11	4.09	103	107	114	140	150	207	191	176	175	175	174	175	176	176	176	168	159	146	146	141	139	140	143	143	143	143	153
12	4.35	100	100	130	163	175	218	174	165	188	188	188	188	188	188	188	182	175	164	157	159	165	165	169	167	165	165	178
13	0.51	100	122	142	178	194	204	189	177	179	179	176	175	175	175	173	171	164	147	135	140	140	138	143	144	139	139	147
14	0.08	103	108	119	165	199	280	197	194	212	200	201	201	204	204	204	198	188	125	126	140	140	140	155	155	155	155	164
15	1.18	104	108	137	161	182	208	171	164	178	175	171	169	166	165	165	161	153	131	127	139	137	139	152	145	142	146	163
16	4.42	101	115	135	154	185	215	192	180	194	193	188	184	189	188	187	182	165	141	145	151	151	157	166	166	166	177	188
17	0.51	100	115	136	156	185	216	192	178	196	196	189	187	192	191	190	186	166	140	145	150	150	150	162	162	162	177	186
18	0.82	101	120	159	170	191	213	185	178	187	187	186	182	185	186	184	177	161	147	151	155	155	156	166	166	166	172	185
19	0.26	101	120	153	160	190	212	181	166	185	185	182	180	183	183	183	174	159	144	149	154	154	153	159	159	159	163	187
20	2.16	102	118	141	159	188	216	191	180	193	192	188	185	189	188	187	176	161	137	142	147	147	155	165	165	165	176	188
21	0.09	100	110	128	150	185	214	190	184	197	197	193	190	195	193	193	182	165	137	142	147	147	156	164	164	164	166	200
22	0.04	100	115	135	155	185	210	193	178	198	198	193	189	193	191	191	184	165	137	142	147	147	154	166	166	166	176	195
23	0.53	100	114	133	152	178	204	167	158	175	175	174	177	178	178	178	172	158	136	141	146	146	149	153	153	153	161	167
24	0.44	101	117	145	155	184	204	170	159	176	176	174	174	176	176	176	172	157	136	142	147	147	151	153	153	153	160	185
25	0.01	108	122	148	175	194	213	194	176	188	189	186	185	188	189	189	178	163	145	148	176	176	178	178	177	179	188	198
26	0.34	103	124	147	158	164	192	191	162	187	179	163	157	163	165	165	150	138	121	119	124	128	131	135	129	129	134	143
27	1.49	94	106	132	152	165	175	163	158	165	164	162	169	158	155	154	147	138	130	130	133	136	138	143	143	143	146	156
28	0.01																						151	149	149	149	150	181
29	0.14	104	122	141	158	189	218	197	184	196	196	191	186	191	191	189	177	162	138	143	148	148	152	167	167	167	176	194
30	0.01	101	117	137	156	187	218	194	180	197	197	192	188	193	191	190	176	161	137	142	147	147	138	164	164	164	175	187
31	0.03	115	166	190	181	186	176	145	132	142	136	140	141	137	142	150	136	116	98	98	103	105	108	123	110	110	114	119
32	0.51	109	148	178	192	189	205	172	163	178	172	175	176	175	178	181	173	148	144	144	148	151	152	155	149	149	155	163
33	0.06	106	116	145	169	194	230	208	179	209	203	185	183	198	199	209	200	172	147	147	150	153	148	157	152	152	152	173
34	0.01	101	110	119	172	206	250	228	214	220	215	220	216	219	219	217	215	175	175	175	180	184	185	185	195	185	185	190
35	0.04	101	117	137	156	186	217	192	179	195	195	190	186	191	190	189	182	164	141	146	151	151	154	161	161	161	168	178
36	0.03	104	124	153	177	205	217	191	190	191	191	191	190	190	190	190	190	181	156	150	145	145	145	150	150	150	150	171
37	0.08	105	113	127	146	158	170	162	149	151	151	151	151	151	149	148	147	144	138	138	147	147	147	161	153	154	158	169
38	0.05	100	100	179	179	184	202	181	170	173	185	190	190	191	191	190	160	155	155	150	150	150	160	170	180	180	180	190
44	0.95	115	126	155	192	200	210	198	173	183	185	185	186	187	189	191	176	166	155	155	179	179	179	198	200	202	212	224
45	0.26	115	126	155	192	200	210	198	173	183	185	185	186	187	189	191	176	166	155	155	179	179	193	206	199	205	215	223
46	0.07	115	126	155	192	200	210	198	173	183	185	185	186	187	189	191	176	166	155	155	155	150	145	149	151	150	158	160
Wtd. Ave. 1-46	73.09	101	110	134	159	178	214	175	157	171	171	166	166	164	161	160	152	143	131	127	131	131	133	142	138	137	140	151

Regions I to VIII, Incl.

Tabulation of Indices by Years and by Accounts
Applicable to the Entire United States

Acct.	*Per Cent	1915	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38	'39	'40	'41
EQUIPMENT																												
51	5.42	86	102	145	189	202	248	192	179	197	185	171	191	190	179	188	194	184	168	166	176	188	188	201	201	201	215	230
52	0.10	100	117	137	184	184	217	197	196	198	199	192	194	202	203	221	221	210	175	165	185	190	190	198	199	190	190	203
53	11.22	101	148	183	243	267	284	184	156	200	179	171	163	178	169	185	181	161	144	144	165	177	180	191	190	198	204	218
54	2.14	89	104	132	164	197	213	169	152	192	187	183	189	191	180	183	181	178	161	161	173	182	182	195	195	194	200	213
55	0.02	89	104	132	164	197	213	169	152	192	187	183	189	191	180	183	181	178	161	161	173	182	182	195	195	194		213
56	0.48	107	125	164	227	245	239	200	175	170	170	170	170	170	170	170	165	158	148	148	158	160	160	171	171	171	176	188
57	0.56	96	128	165	225	244	263	193	168	203	183	188	180	192	184	195	191	178	165	165	177	180	180	197	197	200	208	220
58		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wtd. Ave. 51-58	19.94	96	130	166	219	240	265	185	163	198	182	173	174	183	174	186	185	170	153	153	169	180	181	195	194	198	206	220
GENERAL EXPENDITURES																												
71-75 & 77	0.89	101	110	134	159	178	214	175	157	171	171	166	166	164	161	160	152	143	131	127	131	131	133	142	138	137	140	151
76	6.08	102	111	135	161	181	216	176	158	172	172	167	167	165	162	161	153	144	132	128	132	132	134	143	139	138	141	152
Wtd. Ave. 71-77	6.97	102	111	135	161	181	216	176	158	172	172	167	167	165	162	161	153	144	132	128	132	132	134	143	139	138	141	152
1-46	73.09	101	110	134	159	178	214	175	157	171	171	166	166	164	161	160	152	143	131	127	131	131	133	142	138	137	140	151
51-58	19.94	96	130	166	219	240	265	185	163	198	182	173	174	183	174	186	185	170	153	153	169	180	181	195	194	198	206	220
71-77	6.97	102	111	135	161	181	216	176	158	172	172	167	167	165	162	161	153	144	132	128	132	132	134	143	139	138	141	152
Wtd. Ave. 1-77	100	100	115	142	173	193	226	177	159	177	174	168	168	169	164	166	160	149	136	133	140	142	143	153	149	149	15 3	165

*The percentages shown are the relationship in dollars of each individual account to the total of Accounts 1 to 77, inclusive, except Account 2—Land, and were arrived at by taking 1910-1914 dollars from the basic engineering reports with varying dates of valuation from 1914 to 1921, inclusive, and adjusting for changes shown by the "Bringing to Date" reports. The "Statistics of Railways" were also examined for changes in recent years.

How to Have Adequate Man-Power*

Old-Timers Like These Can Help in Training the New Employees

Using women whenever possible, relaxing age and physical limits, suspending "make-work" rules, enlisting help of "old heads" in training newcomers — such are some of the expedients recommended

SHORTAGES are developing in most employee groups, and they will become more pronounced as the war emergency continues. This is particularly true of train or engine service employees, due to the length of time required to train a new employee to the point where he can be considered reliable, and able to function properly and safely under the various conditions that arise in connection with the movement of trains. One superintendent reports that 28 of his men retired during the last two years, and that during the same period 73 new men were employed in train and engine service. This resulted in at least one unseasoned man, and in some instances two, on practically every train.

The problem of securing competent station agents, telegraphers and train order operators is a difficult one on most railroads. During the depression years large numbers of stations were closed and forces reduced, as a result of which the railroads were not in position to train younger men as telegraphers; furthermore, on account of the installation of such modern devices as C.T.C., teletype machines, etc., the future for telegraph operators has not been promising. Due to the efficiency brought about by modern train operation and the resultant change in communication facilities, which does not require the same number of train order offices as in former years, the recruiting of dispatchers from the ranks of telegraphers also presents a serious problem. Most of the telegraphers have passed middle age.

In meeting this shortage, there is a tendency to relax age requirements for new employees, especially raising the upper limit for experienced men, and, in some cases, reducing the lower limit below 21 for entry into train service and other classifications. We show below the "high" and "low" age limits for a number of classifications, taken from reports of a number of railroads, viz:

	Experienced	Inexperienced
Train, engine and yard service	20 to 55	19 to 35
Clerks	16 to 60	16 to 40
Telegraphers	18 to 60	18 to 35
Shop Crafts	20 to 55	16 to 35
Maintenance of Way	20 to 45	18 to 40

A considerable lack of uniformity exists in the employment rules of different railroads with regard to age limits for new employees. Some railroads will not now accept for employment in yard service anyone who has reached the age of 25 years. One railroad has reached the conclusion that it is highly desirable to hire switchmen at the age of 18 years, providing they are reasonably well developed physically and can meet other requirements. Another railroad is offering employment

* From a report presented before the American Association of Railroad Superintendents by a committee of which H. E. Roll, chief personnel officer, Missouri Pacific, was chairman.

as switchmen at this age and is not requiring a minor's release. It may be necessary in the near future to discard age limits altogether and consider each applicant individually.

The present vision standards of new employees are generally the same on most railroads. When we consider any revision of the age limits upward, we immediately run into the requirements for vision. A new employee entering the service now must have 20/20 vision without glasses, while if a man already in the service is to be re-examined, his vision does not have to be quite so good. There are many cases where a seemingly valuable man has been turned away because he was a little deficient in vision, and yet as good or better physically than many men already in the service.

Use Women Wherever Possible

The railroads should give immediate consideration to the training and employment of women for such positions as telegraph operators, coach cleaners, janitors, and possibly, to some extent, for warehouse labor. There are other positions which can be filled by women, and each railroad should make a survey of the positions which can be so filled. It may be necessary later to transfer male employees to other groups and perhaps eventually replace men with women wherever it can be done consistently, thereby releasing the men for duty in other branches of service.

More intensive use of present forces, through the raising or abolition of mileage limitations in train and engine service, and working overtime beyond limits previously thought economical, will all necessarily have to be considered in the present emergency. Some railroads have found it desirable to grant extensions of service to employees beyond the usual retirement age where this is justified by their physical condition.

"Make-Work" Rules Should Be Lifted

In some states either so-called "full crew" or "train limit" laws are in existence. These are restrictive and unnecessary. They do not benefit the public or other railroad employees. The only argument advanced in their support is based upon safety, which is a fallacy. On the other hand, many unnecessary men are required either as the result of the requirements of working agreements between the carrier and its employees, or of the interpretations placed on rules of these agreements by adjustment boards.

Some action should be taken by the railroads to eliminate these unnecessary employees, at least for the duration of the war. Records maintained by the railroads and the Interstate Commerce Commission fully support the position that the excess employees required under the laws are not necessary for the safe operation of trains, and actual operating conditions support the position that the excess and unnecessary employees required by agreements and interpretations to agreements, can and should be dispensed with. It is, therefore, recommended that railroad officers attempt to work out agreements with the organizations covering these matters, for the duration of the war at least. It is evident that all available manpower will be required for production, and if there are excess employees, as herein indicated, it is only patriotic and in the interest of all that they be eliminated during the emergency.

It is important that the superintendent devote every effort possible to surveying and improving the employees now in service. He should endeavor in every way to hold and interest experienced employees and improve their morale. Furthermore, there will be many training problems in connection with new men coming into the service that will require intensive effort. This naturally means more intensive supervision, more constant teaching and training.

The manner in which a recruit is started in the service is of great importance. The officer should endeavor to dispel from the new employee's mind all thoughts which deal with a master-and-servant relationship or viewpoint. It should be impressed upon him that the company has high ideals which it is striving to uphold, and that every employee will be treated in a courteous and impartial manner.

The new employee should be given a brief outline of the company's history, and told of its position in the general transportation scheme. It might not be amiss to point out to him that just as the employing company is one of the important links in the nation's chain of transportation, so, also, he will be one of the important units in the capacity in which he is employed, and that neither he nor the railroad can be expected to function perfectly all of the time; that he will be expected to do his best always and contribute to the general "esprit de corps," to the end that the railroad may give good, reliable service.

Getting Employees "Customer-Conscious"

The customer policy of the railroad should be gone into. It might be explained to the new employee that while the railroad has operated for many years without him, and could continue without him even though he may become an important part of the organization, it cannot operate without its customers; that if it should lose its customers there would be no need for the railroad or the services of the man.

The employee policy of the railroad should be stressed. It should be explained to him that he will be treated fairly, considerately and impartially, and, in return, will be expected to so treat his fellow employees and the company.

In spite of the large increase in traffic and the necessity for employing inexperienced men in large numbers, every effort should be made to provide proper and necessary training after the new employee has been accepted into the service, and from the standpoint of safety and efficiency there should be no relaxation from the previous practices in force in training new employees.

In the selection of supervisors, ability, ambition, character, energy and intelligence should be considered, and only those with an imaginative mind and the ability to visualize the problems of the entire operation should be selected for the higher positions. These qualities can be developed by a suggestive form of training, such as giving the individual the benefit of one's own experience, by discreet leads as to how to plan and solve the problems of the day, and by constructive praise and criticism.

The supervisor should be taught to appreciate not only his own value and the value of every other employee, but also that each person contributes to his group, and each group to the general success of the operation. He should be taught to be exact in his demands, but courteous, impartial and tactful. He should be able to differentiate between supervision and interference, and between errors in commission and errors of omission. He should encourage his subordinates to prepare for promotion, and endeavor to broaden them by the occasional assignment of some of his duties to them. He should bring to their attention railroad study courses offered by the railroad and by commercial concerns and

recommend them to those interested in preparing for positions of greater responsibility.

Educational Methods

The training program should very definitely include full and intensive use of educational methods provided by the use of (1) the rules instructor, (2) the air brake instructor, (3) the safety instructor, (4) the fuel instructor, and (5) division or subdivision rules meetings. These different methods should be used frequently and thoroughly not only with the new employees entering the service, but for the purpose of indicating to experienced employees the necessity of keeping fully informed on all of the details which their employment required. It is important that they not only keep informed on the rules, but that they know how to operate under the rules. The instruction of such officers can be supplemented by the use of modern and well-equipped cars, particularly in mechanical matters. Even though these facilities are now available on some railroads, under the conditions that exist at present, it is very necessary that they be expanded.

During the depression, the supervisory forces on most divisions were reduced materially, and in many other cases they remained static. It is, therefore, our further recommendation that the superintendent should give immediate consideration to such additions to his supervisory staff as conditions on his division may warrant, in order to insure the proper supervision and education of new employees, and the continued supervision and education of employees already in service.

Statistics are among the most practicable means of supervising the operation of a railroad systematically. Inasmuch as human performance is a limiting factor, data reflecting the efficiency of the personnel are important. System tabulations are fairly well standardized in most cases in order to conform to system requirements and those of regulatory bodies. They are, for the most part, fairly rigid as to character and do not permit of any deviation from the standards that have been established. These compilations, viewed properly in their relation to one another, indicate the efficiency and coordination of an operation, and, it follows, of the personnel engaged in that operation. Thus the division figures can and should be of great immediate assistance to the superintendent by indicating to him, after careful, studied consideration, where to look for trouble when the operations for the periods compared seem out of line.

Statistics Should Fit Local Needs

However, every superintendent is confronted with situations or operations peculiar to his division, and these operations can be evaluated and controlled precisely by individual statistical studies. These, if properly undertaken, will indicate the performance of the personnel engaged thereon. It is not economical or practical to provide supervision to watch over every operation. Furthermore, anything approaching this may easily become interference instead of supervision. A statistical study, carefully adapted to the problem at hand, is in many respects a better and more revealing control than personal supervision, for it is in effect a continuing observation and can be used to set exact standards for performance that will exclude speculation.

In the preparation and use of statistical studies as an indication of relative efficiency, the following considerations should be kept in mind:

1. Is the study being used or is it merely filed?

2. Is there necessity for a periodic appraisal of the various data? Does the cost of its preparation exceed the value of the result?

3. Is the compilation of sufficiently broad proportions to present an adequate and reasonably precise picture? There is an ever present possibility, if improperly prepared data are used, of falling into the trap of reasoning from the particular to the general—with resultant false conclusions.

4. Is there systematic and efficient preservation of the compilations to permit ready comparison of present with previous figures of a like nature in order to determine relative changes?

5. Is there simplicity of presentation, avoiding abstractions and undue refinements that might obscure essential points?

6. Is use made of averages in basing judgments, with due consideration given to the highest, lowest and medium?

7. Is use made wherever possible of percentage figures, as in a frequency table, for example, to convert totals into percentages of the whole in order to give proper significance to each part?

8. Are the data accumulated by or under the direct supervision of a competent person, preferably one with an academic background in statistical methods and application, to insure accuracy and completeness of presentation? The individual studies or situations that offer inducements to study depend to a large extent, of course, on the general character of the business of the division. Therefore, it is not feasible to enumerate, except in a general way, the studies that might be made which would offer tangible and effective results in maintaining careful supervision of personnel.

9. Way freight train performance. Set up in tabular form to show miles run and actual running time; the time lost on account of superior trains and meets (if too high, rearrange the calling time of the trains), coal and water; switching (to develop where road crews may be doing work that can be done more efficiently in yards); tonnage handled, L. C. L. in pounds or units, together with the time spent in handling and the overtime of individual local freight trains.

10. Through freight train performance. Tonnage handled, actual and adjusted, number of cars and type of power; miles run and running time; coal and water time; meets and superior trains; arrival and departure times to show delay at origin and for connections.

11. Drop trains, or cutouts. Daily departure time and delay report, to develop delays to way freights originating at intermediate points as well as delays in handling house freight at intermediate points.

12. Passenger trains. Miles run and actual running time; time at stations for work, to show whether the schedule is too tight or not tight enough, avoiding instances that reflect seasonal fluctuations.

13. Car detention in yards. Average, high, low and medium.

14. In larger stations. The cost per ton for L. C. L. freight and transfer work, and tons handled per man per hour.

15. In yards. Cars switched per engine hour and yard costs for switching, reduced to the cost per car, with due consideration given to the fact that these costs will not always fluctuate in the same ratio as the business.

In addition to the above, there may be individual circumstances that will warrant sample checks, periodically, which in themselves may not have much value but will be very useful when compared with other periods.

Wood Preservation Established Large Gains in 1941

Helphenstine report shows that volume of wood treated last year increased more than 20 per cent, compared with 1940

PARTLY in response to increased industrial activity and partly in contribution to the national defense program, wood preservation in 1941 not only continued the upward trend that, except for a slight recession in 1938, it has followed consistently since 1934, but recorded a greater gain than for many years, while certain classes of material set new records for the volume treated. During 1941 a total of 319,164,422 cu. ft. of wood was given preservative treatment, an increase of 53,691,273 cu. ft., or 20.22 per cent, over the quantity treated in 1940, according to figures compiled by R. K. Helphenstine Jr., Forest Service, United States Department of Agriculture, in co-operation with the American Wood-Preservers' Association. The volume treated was greater than for any year since 1930, and amounted to 88.1 per cent of the quantity treated in 1929, the peak year for the industry; in fact, the volume treated in 1941 has been exceeded only four times in the 33 years that this record has been kept.

Classes of Material Treated in 1941

	Cu. ft.	Per cent of total
Crossties	142,992,057	44.8
Switch ties	11,856,495	3.7
Piles	21,573,674	6.8
Poles	90,028,576	28.2
Wood blocks	7,473,624	2.3
Construction timbers	15,838,092	5.0
Cross arms	1,159,365	0.4
Miscellaneous	28,242,539	8.8

As in all previous years since the beginning of the wood-preserving industry, in 1941 the railways maintained their position as the principal consumer of treated timber. Previous to 1939, this position had been assured by the fact that crossties alone constituted more than 50 per cent of the total volume of timber treated each year, and only the railways use ties. However, in 1941, as in 1939 and 1940, crossties fell below 50 per cent of the total volume of wood treated, despite the fact that there was an increase of 11.7 per cent in the number given preservative treatment, although when switch ties and other materials, such as piles, poles, posts, structural timber, lumber, etc. are added, the total consumption by the railways still approximated two-thirds of the total volume of wood treated in 1941.

Of the total volume of wood treated in 1941, crossties accounted for 142,992,057 cu. ft., an increase of 14,992,263 cu. ft. Numerically, a total of 47,664,019 crossties were given preservative treatment in 1941, an increase of 4,997,421, or 11.7 per cent. This was the largest number to be treated in any year since 1931. As in 1940, oak ties ranked first in number with 22,661,801, or 47.5 per cent of the total. Southern pine continued in second place with 9,150,783, or 19.2 per cent; Douglas fir remained in third place with 4,392,656 crossties treated, accounting for slightly more than 9 per cent of the total; and gum ties again held fourth place with 3,567,531 crossties treated, representing approximately 7.5 per cent. Other woods included ponderosa pine, lodgepole pine, tamarack, maple, birch, elm, beech and

hemlock in the order given, aggregating 14.37 per cent of the total, while 1,044,084 crossties, or 2.19 per cent of the total, of woods other than those named were given preservative treatment.

Of the total number of crossties treated during the year under review, 28,958,844, or 60.75 per cent, were treated with straight creosote or with solutions of creosote and coal tar; 17,491,742, or 36.7 per cent, were impregnated with mixtures of creosote and petroleum; and 1,029,869, or 2.16 per cent, were treated with zinc chloride or chromated zinc chloride; while all other preservatives accounted for only 0.39 per cent of the total number of ties that were given preservative treatment. All but 8,132 crossties reported in 1941 were given pressure treatment.

During the year 27,450,340 crossties, or 57.6 per cent, were adzed and bored prior to treatment; 4,621,088 were bored but not adzed; 844,556 were adzed but not bored; while 14,748,035, or 30.9 per cent, were neither adzed nor bored.

Treatment of Miscellaneous Material—Ft. b. m.

	1941	1940	1939	1938
Lumber	281,006,886	234,133,962	186,429,495	116,640,856
Fence posts	28,061,805	17,926,013	13,819,213	14,206,465
Tie plugs	2,222,766	2,581,215	1,559,314	788,781
Crossing plank	1,360,584	724,506	None reported	807,684
Car lumber	220,668	None reported	48,204	None reported
Window sash*	5,920	416	.....	.....

* Window sash were reported as a separate item for the first time in 1940.

The quantity of switch ties given preservative treatment in 1941 amounted to 142,277,936 ft. b.m., representing an increase of 35,968,197 ft. b.m., or 33.8 per cent, compared with 1940. In this classification oak was also in first place with 76,526,760 ft. b.m., or 53.8 per cent; southern pine forged ahead into second place with 22,178,733 ft. b.m., or 15.6 per cent; while Douglas fir dropped to third place with 17,948,388 ft. b.m., or 12.6 per cent; and gum accounted for 8,666,749 ft. b.m., or 6.1 per cent of the total. The reamaining 11.9 per cent included maple, tamarack, beech, birch, lodgepole pine, elm, in the order named, and a few miscellaneous species.

Piles Continue to Gain

Despite a gain of 70 per cent in 1939 and a still further gain of 7 per cent in 1940, in 1941 piles recorded a further increase of 8,744,661 lin. ft., or 37.8 per cent, to 31,899,563 lin. ft., the largest volume ever to be given preservative treatment in a single year. As in other years, southern pine stood far ahead of other species, with 24,312,368 lin. ft., or 76.2 per cent; Douglas fir ranked second with 7,134,744 lin. ft., or 22.4 per cent; while Norway pine rose to third place with 197,839 lin. ft., or 0.6 per cent; and oak, with 186,299 lin. ft., or 0.5 per cent, fell back to fourth place. The remaining 68,313 lin. ft. consisted mainly of western red cedar and ponderosa pine. All but 41,666 lin. ft. of the piles treated in 1941 were treated by pressure processes, and 99.5 per cent were treated with creosote or creosote mixtures.

Poles also recorded a large gain, increasing by 903,357, or 21.4 per cent, over the number treated in 1940, from 4,211,903 to 5,115,260, the largest number ever reported for a single year. Of the total number reported 3,670,681, or 71.7 per cent, were southern pine, an increase in this species of 523,344 poles, compared with the number treated in 1940. Western red cedar ranked second with 1,162,987 poles treated, or 22.7 per cent. Northern white cedar ranked third with 153,681 poles; and Douglas fir, with 40,991 poles, was in fourth place. The remainder consisted of lodgepole and Norway pine and miscellaneous species. Most of the poles reported in 1941 were treated with creosote. However, of the total, only 3,754,893 poles, or 73.4 per cent were given full-length pressure treatment.

Wood Preservation 1909-1941

Together with Consumption of Creosote and Zinc Chloride

Year	Total material treated, cu. ft.	Number of crossties treated	Creosote used, gal.	Zinc chloride used, lb.*
1909	75,946,419	20,693,012	51,426,212	16,215,107
1910	100,074,144	26,155,677	63,266,271	16,802,532
1911	111,524,563	28,394,140	73,027,335	16,359,797
1912	125,931,056	32,394,336	83,666,490	20,751,711
1913	153,613,088	40,260,416	108,373,359	26,466,803
1914	159,582,639	43,846,987	88,764,050	27,212,259
1915	140,858,963	37,085,585	84,065,005	33,269,604
1916	150,522,982	37,469,368	96,079,844	26,746,577
1917	137,338,586	33,459,470	83,121,556	26,444,689
1918	122,612,890	30,609,209	56,834,248	31,101,111
1919	146,060,994	37,567,927	67,968,839	43,483,134
1920	173,309,505	44,987,532	70,606,419	49,717,929
1921	201,643,228	55,383,515	77,574,032	51,375,360
1922	166,620,347	41,316,474	87,736,071	29,868,639
1923	224,375,468	53,610,175	128,988,237	28,830,817
1924	268,583,235	62,632,710	158,519,810	33,208,675
1925	274,474,539	62,563,911	169,723,077	26,378,658
1926	289,322,079	62,654,538	188,274,743	24,777,020
1927	345,685,804	74,231,840	221,167,895	22,162,718
1928	335,920,379	70,114,405	222,825,927	23,524,340
1929	362,009,047	71,023,103	226,374,227	19,848,813
1930	332,318,577	63,267,107	213,904,421	13,921,894
1931	233,334,302	48,611,164	155,437,247	10,323,443
1932	157,418,589	35,045,483	105,671,264	7,669,126
1933	125,955,828	22,696,565	85,180,709	4,991,792
1934	155,105,723	28,459,587	119,049,604	3,222,721
1935	179,438,970	34,503,147	124,747,743	4,080,887
1936	222,463,994	37,952,129	154,212,999	4,127,886
1937	265,794,186	44,803,239	183,574,581	4,833,935
1938	244,221,442	44,598,678	166,183,891	4,829,590
1939	245,219,878	35,748,845	163,864,259	4,522,070
1940	265,473,149	42,666,598	174,625,305	5,180,896
1941	319,164,422	47,664,019	215,467,780	5,786,424

* Includes chromated zinc chloride.

In 1941, the wood-preserving industry consumed 215,467,780 gal. of creosote, compared with 174,625,305 gal. in the previous year, an increase of 40,842,475 gal., or 23.4 per cent. It is of interest to note that this was the largest consumption of creosote since 1929, the peak year for the wood-preserving industry, and that it has been exceeded in only three years previously. It is also only 10,906,447 gal., or 4.8 per cent, less than the 1929 consumption. Mixtures of creosote and petroleum in 1941 consumed 32,388,706 gal. of petroleum, compared with 31,386,909 gal. in 1940, an increase of 1,001,797 gal. This volume of petroleum was used in the preparation of 62,864,714 gal. of such mixtures, compared with 64,370,186 gal. in 1940, a decrease of 1,505,472 gal.

Both zinc chloride and chromated zinc chloride showed increased consumption. The consumption of the former was 1,403,863 lb., or 183,863 lb. more than in 1940, while the increase in the latter was 421,665 lb., from 3,960,896 lb. in 1940 to 4,382,561 in 1941.

In 1941, a total of 1,656,014 lb. of Wolman salts and 268,795 lb. of zinc-meta-arsenite were used, compared with 1,062,048 lb. and 201,547 lb., respectively, in 1940. These quantities represent an increase of 593,966 lb. of Wolman salts, and 67,248 lb. of zinc-meta-arsenite, compared with the amounts consumed in 1940. For the second time Celcure has been segregated from miscellaneous preservatives and reported separately. In 1941, the consumption of this preservative was 310,921 lb., an increase of 68,182 lb. For the remainder, 992,504 lb. of miscellaneous salts and 136,074 gal. of miscellaneous liquids were used in 1940. This represents a gain of 590,917 lb., or more than 122 per cent for the salts and a decrease of 103,284 gal., or 43 per cent for the liquids.

The total quantity of miscellaneous material given preservative treatment in 1941 amounted to 338,910,473

ft. b.m., compared with 275,083,146 ft. bm. in 1940, a gain of 63,827,327 ft. b.m., or 23.2 per cent. Included in this figure were lumber, 281,006,886 ft. b.m.; fence posts, 28,061,805 ft. b.m.; tie plugs, 2,222,766 ft. b.m.; crossing plank, 1,360,584 ft. b.m.; car lumber 220,668 ft. b.m.; and window sash, 5,920 ft. b.m.

During the year there were 235 treating plants in the United States, 7 more than in 1940. Of these 230 were in active operation, the largest number of record, 7 more than in 1940 and 9 more than in 1938 and 1939, the previous record years. Only 1 new plant was constructed during the year, and 3 were abandoned, all of the non-pressure type. During the year only 2 plants remained idle. Of the total number of plants in existence, 187 were commercial plants that treat wood for sale or by contract; 23 were owned and operated by railways; and 25 were owned by public utilities, mining companies, etc., to supply their own needs.

Refrigerated Containers Meet a Vital War Need

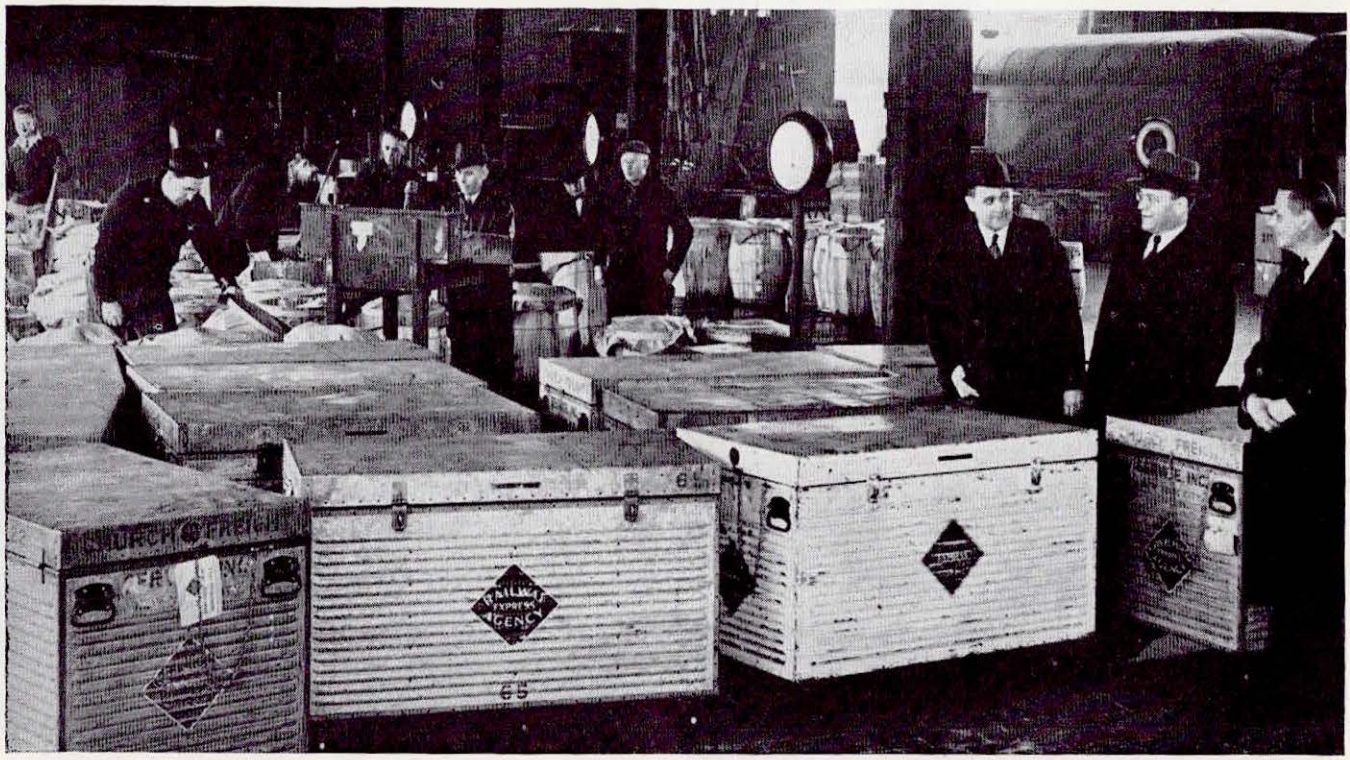
STARTED in a small way in February, 1939, the "refriger-ex" container system used by the Railway Express Agency for handling l. c. l. shipments of perishables under refrigeration has developed rapidly to meet wartime demands.

This service has become particularly important to the efficient functioning of an essential element in the war program—the Red Cross "blood bank." Dry blood plasma transfusion units, prepared from blood donations offered by volunteers all over the country, are now regularly employed in the treatment of casualties on the battlefront, on shipboard, and in bombed cities. The clinics where the blood donations are collected can be established wherever elementary hospital equipment is available, and mobile units have been organized to extend the scope of the collecting organization, but the processing operations by which the dry plasma is prepared require skilled hands and specially equipped laboratories, of which there are as yet only a dozen or so in the whole country. The blood must be processed within 24 hours after it is collected, and during the intervening time must be kept in glass at an even temperature of about 41 degrees Fahrenheit. A variation of even a few degrees renders the blood useless for plasma preparation.

Transportation of the fresh blood from the collection clinics to the laboratories, therefore, involves three essential factors, careful handling, speedy movement, and efficient temperature control. Because the Railway Express Agency's "refriger-ex" service met these requirements it was promptly adopted for this important traffic, and the development of processing laboratories at strategic points about the country has been planned to take advantage of this form of service.

The refrigerated container was developed by the Church Freight Service, New York, to move l. c. l. shipments of oysters, frozen fruits and vegetables, ice cream, poultry and meats, fresh and frozen fish and similar perishable commodities. It can be handled at any Railway Express station. Essentially it is a double-walled metal box, insulated all around with four inches of spun glass, and fitted with a hinged lid and casters. The container has a capacity of about ten cubic feet; its interior measures 44 inches by 22 inches, and is 20½ inches deep. The ice bunker, supported by lips resting on the inner edge of the container, is 21 inches by 11 inches by 11 inches, and holds 90 pounds of water ice or 100 pounds of dry ice. If the container is pre-cooled to the desired temperature before it is packed, this quantity of refrigerant will maintain that temperature within close limits for four or five days. The empty container weighs about 250 pounds.

In handling ordinary commodities the containers go from place to place about the country as needed, like a railroad freight car, but in moving blood shipments a



Refrigerated Containers Ready to Roll at a Railway Express Station

shuttle service frequently is set up between the collecting centers and the laboratories, as it is convenient to return the empty bottles, and the bags and baskets in which they are packed, in the same container. Fifty containers were introduced in 1939, and in that year they were used for an average of 128 shipments per month. Several times that number are now in service, and 1907 shipments were handled in May, 1942.

Blood now ranks first among commodities carried; oysters and salt water fish, shipped fresh to interior points, are next in importance. Where receivers do not have adequate refrigerator equipment to handle frozen foods or similar commodities the container may be used for storage while its contents are being sold. A special glass panelled display top is available for this purpose, and a demurrage charge is assessed for use of the container.

Sleet Removal on Electrified Roads

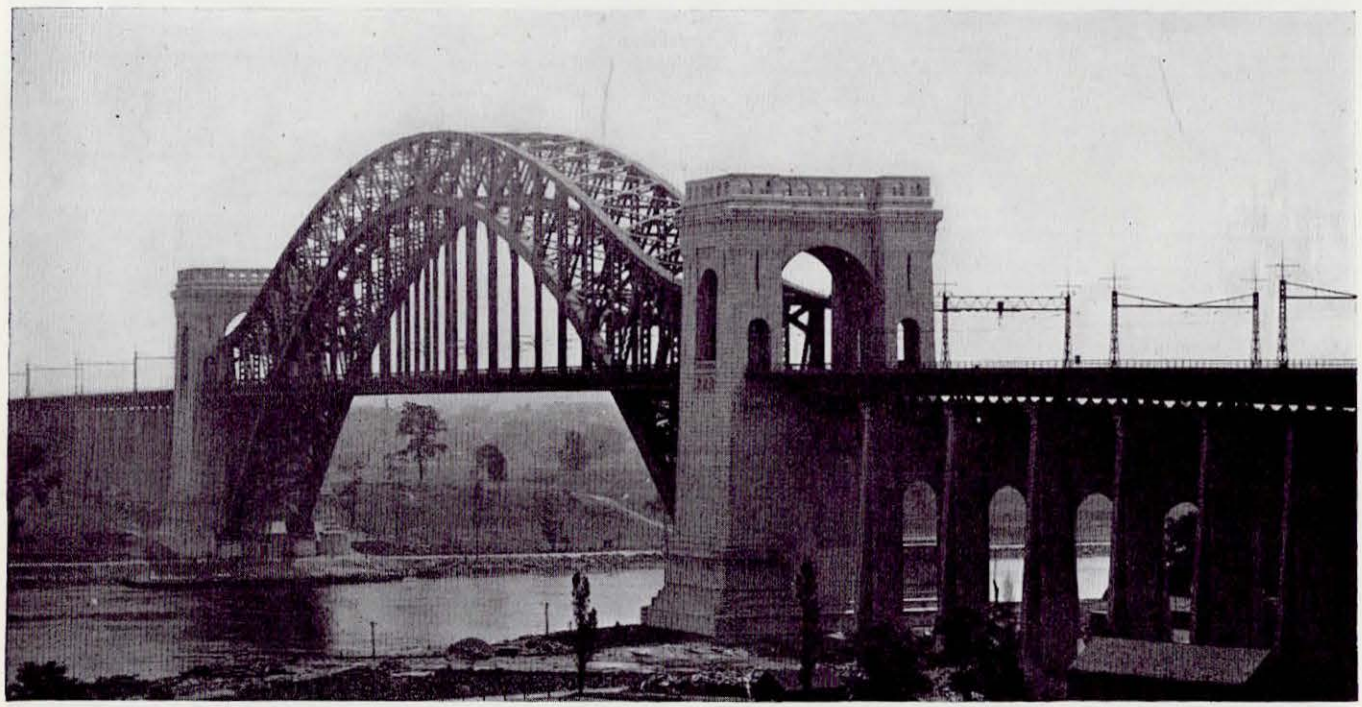
SLEET storms, which may cover with ice the overhead contact wire, the third rail or the pantograph, occasionally cause special problems on electrified railroads. Means of dealing with these troubles are described in a paper, "Sleet Problems on Electrified Railroads," by H. F. Brown, assistant electrical engineer, New York, New Haven & Hartford, which was presented at a recent meeting of the American Institute of Electrical Engineers. The basic problems concerning overhead contact systems and pantographs are outlined in the paper, as follows:

"On the contact wire, the ice accumulation, in itself a poor conductor, interferes with the current collection if it becomes too thick, and causes severe arcing, which can seriously damage the contact conductor by burning and pitting—and can even cause flashovers where clearances to grounded structures are limited or reduced. Frequently the collector shoe can be burned in two by such arcing before many miles have been traveled. Contact wire wear is increased by the roughened collector shoe, and the fine polish acquired by months of lubrication, or otherwise, may be destroyed.

"The static ice load on the catenary contact system may become great enough to distort the vertical alinement by greatly increasing the sag at the center of the span, causing the collector shoe to skip and arc at the suspension points, since the pantograph is usually sluggish in its action under such conditions. Where heavy ice accumulations are known to be possible, the designer should weigh this factor in the selection of span length, especially if high speed operation is involved, since this distortion will increase directly with the square of the span length for the same weight of ice. With inclined catenary construction, the increase in static load may distort the horizontal alinement enough to de-wire the collector shoe on long spans on curves of long radius. Here again the remedy lies with the designer by using shorter spans or applying adequate horizontal bracing.

"The additional wind load on the ice covered contact system may result in further alinement distortion caused by horizontal sway, or in vertical 'dancing,' which even if not severe enough to damage the overhead system, is in itself detrimental to continuous current collection and to high speed operation and continuous tractive effort. Violent dancing may under extremely severe conditions wreck the line. Adequate bracing to take care of horizontal sway may have no beneficial effect on, and may even augment this vertical dancing under critical conditions.

"The ice accumulation on the pantographs and overhead collector shoes may add so much extra weight to these parts as to completely nullify the normal spring tension which holds the shoe against the contact wire, and the pantograph will drop away from the wire, or will not rise again after having been depressed, where the contact wire is lower than normal, as under a highway bridge or other low overhead structure. A means



The Hell Gate Bridge and Elevated Approaches Are Particularly Subject to the Formation of Sleet on Overhead Wires

of augmenting the normal spring pressure, by added air pressure or otherwise, is one means of overcoming this difficulty; but it must be remembered that the pantograph pressure cannot be made too great without affecting the contact system."

Where traffic is dense, the paper states, ice or glaze is scraped or shaken off the contact wire by the pantograph before it has a chance to build up to a troublesome thickness. On light traffic lines, ice may be removed by a special car or locomotive assigned to operate frequently to and fro.

In some cases it has been found practicable to coat the contact wire with a waxy or greasy substance which will not become sufficiently wet in a light rain to allow the formation of a continuous film, but will cause the water to collect in drops. This may be partially successful in light ice storms of short duration, but since the drops which adhere and freeze have the same surface tension as the raindrops, they finally form a continuous coating.

Electrical Methods

Certain sections of railway line are exposed to unusual conditions favoring rapid accumulation of ice. On such sections even frequent traffic is not enough to keep the contact wires clear. A portion of the New York Connecting Railroad over the Hell Gate Bridge spanning the East river, near the north end of Manhattan Island, New York, is such a section.

The paper describes one method which has been used and two others which have been engineered for removing formations of ice electrically. There are four tracks in this section, an eastbound and westbound track, each for freight and for passenger service, not connected by crossovers except at some distance east of the section, so that this section is operated as two two-track railroads. There are four contact wires with catenary construction and four feeder circuits.

The system of melting ice which was used successfully consisted of exchanging traction power from a supply station several miles east of the section over one circuit at a time in the section, either trolley or feeder, to a second supply station several miles west of the section. Power is transferred in either direction by raising voltage slightly at either supply station. It was calculated that about 750 amperes would be required in the catenary system (consisting of a bronze messenger, copper auxiliary wire and a 4/0 bronze contact wire), to cause enough current (approximately 200 amp.) to flow in the contact wire to raise its temperature 10 deg. F., or enough to remove the ice. In practice, it was found that ice already formed could be melted from the feeders in from 6 to 10 minutes and from the catenary in about twice this time, depending upon the temperature and wind conditions, and the amount of power exchanged which is limited by the capacity of a motor-generator set at the western supply point.

Two other schemes of removal consist respectively of circulating large currents at low voltage through isolated sections of the contact system by means of special transformers. Such transformers must be insulated for the high voltages used on the contact system.

A third arrangement would pass a current of approximately 800 amp. through one trolley or feeder circuit at a time to a controlling water rheostat and thence to ground. This method is less costly to install than the transformer method, but is wasteful of power, since the water rheostat must absorb about 95 per cent of the power, leaving only 5 per cent for use in heating the wire.

Accumulations of ice on pantographs and collector shoes may be removed by raising or lowering them by means of their own operating mechanisms at frequent intervals. This means cannot be employed on long high-speed runs. It is customary practice to use higher spring pressure during the winter and it has been suggested that normal pressure be increased by auxiliary air pressure to overcome the weight of the ice which at times causes the pantograph to drop away from the wire.

Steam jets from the locomotive heating boiler have been suggested, and another method which has been proposed consists of having the pantograph frame split electrically so that a separate special transformer may be used to circulate heavy currents through the pantograph which will remove the ice by melting. Coatings of waxy or greasy substance are thought by some to be helpful in delaying the formation of ice on pantographs.

Dwight L. Smith, engineering assistant to executive officer, Chicago Rapid Transit Company, described a mechanical roller and scraper which has been used effectively for removing ice from third rails. He also told of a graphite anti-freeze and light oil mix which is applied by hand for softening the ice on third rail so that the contact shoe will take it off.

D. R. MacLeod, application engineering, transportation department, General Electric Company, described the use of a 7-volt transformer for circulating current through pantograph members to prevent the formation of ice. Such a transformer is rated at from 5 to 7½ kva. He also suggested a number of difficulties involved if transformers are used to produce circulating currents for melting ice on overhead contact systems.

In response to a question concerning the formation of an ice wing on the wire, which causes dancing of conductors, W. J. Clardy, transportation engineer, transportation and generator engineering department, Westinghouse Electric & Manufacturing Company, said: "Dancing could be caused by sudden heavy changes in current. These build up forces in the surrounding field which cause the conductors to swing." He also told of the use by the Chicago, Aurora & Elgin of a special shoe with blunt-nosed teeth which is pressed down on the third rail by an air cylinder for removing ice in advance of the contact shoe. Mr. Brown said that conductors may be caused to dance by wind to a lesser degree in the summer time, when there is no ice wing on the wire.

Communication . . .

Army Railroading as It Is Reported in This Paper

St. Paul

To the Editor:

I have just finished reading, with more than unusual pleasure, the August 1 issue of the *Railway Age* and the splendid editorials on "War Tests Carriers' Relative Efficiency" and "Railroad Men in the War" and even more the very interesting, well written, thoroughly accurate account of the construction of the Claiborne-Polk Military Railroad (this is the new official name of this railroad).

I don't know who wrote it, but it is well done and tells the story in a most interesting and yet rather brief sort of way. I just couldn't refrain from telling you how appreciative we of the Military Railway Service are for the splendid write-up and the interesting facts concerning our efforts.

Carl R. Gray, Jr.,
Brigadier General, U.S.A.,
General Manager, Military Railway Service

Railroads-in-War News

New Rail Route for Ore from Superior

Railroads on the peninsula to be improved, with bigger docks at Escanaba

Development of an additional route for bringing iron ore from the Great Lakes region to the steel mills has been approved by the War Production Board. The program, which would be federally financed at a cost estimated "between 20 and 30 million dollars," would involve the construction of ore yards and docks at Escanaba, Mich., and the possible dredging of additional channels in Escanaba harbor, in order "to make possible the handling at that port of 60,000,000 tons of ore per season."

Also comprehended in the project are improvements in roadbed and bridges of rail lines operating between Escanaba and Superior, Wis., and between Escanaba and Ironwood, Mich.

The WPB announcement said that the plan was a move "to safeguard the flow of iron ore to the nation's iron and steel mills . . . in the event the locks at Sault Ste. Marie, Mich., should be closed to traffic of ore-carrying vessels."

It was stated that approximately 84,000,000 tons of ore will pass through the Soo locks this season, adding that "to move this ore by rail to the steel-producing areas around the lower lakes would be extremely expensive and would tie up rail shipments of other goods." Moreover, "it would require rail equipment urgently needed for other purposes"; while, in addition, "many furnaces are situated on lake-front sites and are not equipped to receive ore by rail."

The additional-route program was worked out by a special committee under E. B. Stern, chairman of WPB's Transportation Committee. It is estimated that the proposed improvements will require a maximum of 5,000 tons of steel, and that they could be completed by the end of this year.

"Completion of this program," said the WPB, "will mean that the United States will have a second route for the handling of iron ore capable of moving up to 100,000,000 tons annually. Forty million tons, according to the Office of Defense Transportation, could be moved annually from the Duluth area to the Ohio and Pennsylvania furnaces by rail. Sixty million tons could be moved to Escanaba, either by an all-rail route or by water and rail via Marquette, Mich. At Escanaba, this tonnage can be sent on to the furnaces by boat."

Girls Hired as "Office Boys"

In the general offices of the Central Vermont at St. Albans, Vt., girls are now employed in work previously reserved for boys who wanted to learn railroading "from the ground up." They are assigned to all duties formerly performed by office boys, and also carry on the routine interdepartmental exchanges of messages and reports. So far their employment is limited to the regular day office hours.

Joins Army Air Forces

Gardner C. Hudson, executive secretary of the Kentucky Railroad Association with headquarters at Louisville, Ky., has been commissioned a first lieutenant in the Army Air Forces with an initial assignment to Washington, D. C. Mr. Hudson, who had been with the Kentucky Association since December, 1934, was granted a leave of absence to accept the commission. He is a former associate editor of *Railway Age*, having served in that position at New York from September, 1929, until February, 1933.

Trucks and Buses in Blackouts

Interstate trucks and buses should not be required to stop during practice blackouts but should be permitted to operate with dimmed lights and at reduced speed unless an actual or practice air-raid alarm has been sounded, James M. Landis, director of the Office of Civilian Defense, said this week.

These vehicles are expected to stop during an air-raid alarm, either day or night, Mr. Landis explained, but there is no OCD regulation which requires that any vehicle come to a stop during blackouts when an air-raid alarm has not been sounded.

ODT Commission Will Investigate Transport in Puerto Rico

A special commission to investigate transportation conditions in Puerto Rico has been appointed by Director Eastman of the Office of Defense Transportation. It is headed by a native Puerto Rican—M. G. de Quevedo, now a Washington, D. C., attorney and a former member of the Interstate Commerce Commission's staff.

The ODT announcement followed issuance of President Roosevelt's August 5 executive order, extending ODT authority to "all domestic transportation within the territories and possessions of the United States." The commission, the ODT announcement said, "has been charged with responsibility for studying the effects of the present acute shortage of rubber and gasoline in Puerto Rico on transportation in the island, with a view, particularly, to the development of a conservation program for trucks and buses."

Says Roads Must Get New Equipment

Must be able to play "their essential part," General Gross declares

If the steel required for the war is to be obtained, the railroads must be allowed the equipment necessary to move the things that produce this critical material, Brigadier General Charles P. Gross, chief of the Transportation Corps of the Army's Services of Supply, declared in a round-table radio discussion in Washington on August 13.

"The railroads need steel," General Gross said. "Every war agency seems to require more than it is getting. But in order to make one ton of steel, the railroads must haul five tons of ore, coal, coke, limestone and the other essentials for its manufacture. To get the steel, the railroads must be able to play their essential part. They must be geared to the full, all-out war effort of this nation as a vital element of the team."

Pointing out that "the railroads have met the startling increases in traffic since 1939 largely by using their reserves rather than by additions to their equipment," General Gross continued:

"They have used existing equipment more intensively with increasing cooperation between companies. They have reduced their unserviceable units and brought them into use. They have loaded cars more completely. This reserve capacity in heavier loading, in blocking through solid trains and in unification of effort is not exhausted, but there is far less fat left. The additional loads that are coming in 1943 must, therefore, be met to a greater degree by new equipment."

General Gross commented that the railroads "responded beautifully" to the unexpected emergency created by the attack on Pearl Harbor, and that since then they "have had a big job to do, and they have done it well." He disclosed that from the time the United States entered the war until the end of July, the railroads transported in organized movements approximately six and a quarter million troops.

"In the war effort," General Gross went on, "no group, no agency, works more wholeheartedly, more energetically to fulfill the war mission than do the railroads and their national organization, the Association of American Railroads. Their team play has been superb. They respond to the War Department immediately and to their full capacity. My relationship with them has been one of the most heartening experiences I have had. The railroads have

the spirit that will win this war." The co-operation of the public in connection with the movement of troops and their supplies was praised by General Gross, who stated that he has been "particularly impressed with the way the traveling public has accepted delays and inconveniences in order that military needs may come first."

"Given some evidence of need," he said, "the public will respond. Their capacity in that respect hasn't been approached."

Brigadier General Carl R. Gray, Jr., general manager of the Military Railway Service, revealed that his branch of the Army, which will operate railroads in zones of military combat, will need about 35,000 men and probably more as the war progresses.

"This is a world-wide war," General Gray observed, "and we may find ourselves running railroads all over the globe. Our job is wherever our Army is, and today it's pretty well scattered around."

As far as the Military Railway Service has been organized, General Gray declared, it is ready for active service. Four operating battalions and one shop battalion have been activated and others will follow, he said.

In describing the setup of the Military Railway Service, General Gray explained that it parallels closely the standard organization of commercial railway operations. It was, he added, founded on the basic principle that "railroads, whether they be military or commercial railroads, should be run by railroad men."

According to General Gray, a military railroad "has only one thing to worry about—the getting of men, munitions and supplies where they are needed, when they are needed, regardless of what the enemy might do to try to stop it."

Reading Tightens Pass Rules

Restrictions applying to all holders of annual or trip passes on the Reading, including officers and employees, members of their families, and pensioners, are announced to become effective September 1. After that date free transportation will not be authorized on holidays anywhere on the road, and in the Philadelphia suburban area passes will not be accepted during the regular week-day rush hours. Provision has been made to allow employees to commute to and from work, however, and exceptions to the new regulations will be made in cases where employees or officers are traveling on company business.

East Coast Oil Movement Shows Decrease

A total of 784,350 barrels daily of petroleum and petroleum products were shipped to the Atlantic seaboard during the week ended August 1, according to an announcement by Petroleum Co-ordinator for War Harold L. Ickes. This was a decrease of 15,750 barrels daily, or two per cent, under the previous week when rail shipments reached the all-time high of 800,100 barrels a day.

In handling the movement the 34 oil companies loaded 26,145 cars. Including cars that were on the way back west for reloading, it is estimated that 62,000 tank cars, taken largely from other sections of the country, are employed in the east coast service.

Meanwhile, Mr. Ickes stated that within a week of the dispatch of telegrams to oil companies in unrationed areas, nearly 2,400 additional tank cars have moved into service in hauling oil to the east coast. Last week Deputy Co-ordinator Ralph K. Davies called upon oil companies and the four principal tank car companies to produce 5,000 more cars for the east coast service.

Eastman Would Let Roads Determine Car Types for Shippers

Because "the nation's supply of gondola cars and flat cars for army and industrial freight has become so acute," Director Eastman of the Office of Defense Transportation this week appealed to all shippers to permit railroads to determine where practicable the type of car to supply on shippers' orders for loadings. The appeal follows a previous one wherein the ODT director recently urged shippers to conserve hopper cars by specifying optional equipment if the lading could be handled in other types.

After referring to that previous appeal, the present ODT announcement went on to say: "The situation in the supply of all open-top cars, however, has become critical, and shippers' advisory boards in various regions are urging that orders for open-top freight equipment be so placed that box cars, where available, may be substituted provided the commodity to be shipped can be satisfactorily handled in a box car. Gondola cars are particularly in demand for the shipment of steel, iron ore, and other industrial commodities, while flat cars are being largely utilized by the army for the movement of tanks, big guns and other war equipment. These factors, together with the demand of coal producers for hopper cars, are increasingly taxing the ability of the railroads to supply open-top cars."

Army Transportation Agency Established in Chicago

A transportation agency has been established in Chicago by the War Department as a step to speed shipments of army and lend-lease material, equipment and supplies by motor, rail and inland waterways from the Mid-West. The agency is part of the new Army Transportation Corps, Services of Supply, which operates similar agencies at Detroit, Mich., and Pittsburgh, Penna. Others may be created later. The agency at Chicago will administer and supervise all of the activities of five branch offices. Two of these, the U. S. Army Consolidating Station and the Traffic Control Agency, both in Chicago, are already in existence. The program calls also for the establishment of a Highway Agency in Chicago and so-called Regulating Stations in Evansville, Ind., and Cairo, Ill. The agency is under the command of Colonel Harry G. Williams, Quartermaster Corps, who until recently was the commanding officer of the Port Agency at Philadelphia, Penna.

The new regulating stations are designed to prevent traffic congestion to specified points. They will serve in controlling the movements of war materials by holding, re-routing, and other means. Another major purpose of the Transportation Agency is to assure that properly qualified transportation officers are placed in strategic areas to see that vital traffic flows smoothly. The agency also will contact the manufacturing concerns in its area, principally those producing war materials, to smooth out any transportation difficulties. Officers of the agency will discuss with the manufacturers such things as securing proper equipment, routings and services by rail, highway, and inland waterways. They will also check into proper packaging and crating of goods to assure safety in shipment, as well as to see that they occupy a minimum amount of space on the carriers.

New Travel Bureau in War Department Building

A travel bureau, including a completely equipped railroad ticket office, has been installed in the War Department's new building at Arlington, Va., as a time-saving service for the military and civilian personnel employed there. Three ticket-sellers, employed by the railroads, are on duty.

This service was arranged at the suggestion of the Passenger Branch, Traffic Control Division, of the Transportation Corps, Services of Supply. It is expected not only to expedite travel for War Department personnel but to ease the strain on the facilities of the Union Station and downtown ticket offices in Washington, D. C. Arrangements are under way for extension of the ticket-selling service to include air and bus transportation, the War Department announcement said.

Restricts Sales of Railroad Standard Watches

Railroad standard watches may hereafter be sold by manufacturers only to fill orders for the Army or for time-service employees of railroads. The restrictions are embodied in General Limitation Order L-175, issued August 7 by the War Production Board.

Under it a watch manufacturer may sell or deliver railroad standard watches only as follows: (1) To fill orders for the Army; (2) to fill an order accompanied by a certificate signed by a railroad time service employee and his division superintendent, stating that the railroad for which he works requires him to carry a railroad standard watch and that he has no such watch; (3) to fill orders placed by dealers or wholesalers accompanied by a certification that the watches are required to replace in inventory an equal number of such watches sold to railroad workers upon certification that the watches are required in their work.

Industrial Freight Cars Placed Under Limitation Order

General Limitation Order L-97-b, taking control of the production and delivery of industrial cars was issued on August 8 by the War Production Board. Industrial cars are defined as "cars of the railroad type (including cane cars) which are used in intra-plant service.

Like the limitation orders whereby WPB took control of railroad cars and locomo-

tives last April, L-97-b stipulates that no builder shall produce or deliver any industrial car except as authorized by specific direction from WPB's director general for operations. Also, repairs or rebuilding of cars for sale are prohibited, although the order does not preclude repairing or rebuilding of the cars "for the owner thereof for use as industrial cars."

The WPB announcement said that the order was issued because the Transportation Equipment Branch had found some industrial cars being built for non-essential purposes. It added that WPB desired to schedule production and deliveries "on an orderly basis so that only essential requirements would be met."

Chicago Meeting on Trainload Oil Movements

Further plans "to complete the coordination of solid-train movements of oil from the Suthwestern fields to the Eastern seaboard" were discussed at a meeting in Chicago on August 12, according to the Office of Defense Transportation.

The meeting, called by ODT, was to be attended by members of the oil industry and representatives of the railway operating officers and the Association of American Railroads. It followed a session held in Dallas, Texas, last week at which, as the ODT put it, "130 representatives of railroads and producers pledged an all-out effort to round up the tank-car output of the small fields and consolidate the cars into train lots at convenient points." It added that "already two-thirds of the oil moving out of Louisiana, Texas, Oklahoma and Mississippi is rolling in trains of 60 cars or more, consigned to Eastern destinations closest to the ultimate consumers. The remaining third of the traffic represents the output of the small producers."

ODT Curtails Competing Buses

Bus lines operating between Chicago and Peoria, Ill., and St. Louis, Mo., and between Tulsa, Okla., and Dallas, Tex., have been directed by the Office of Defense Transportation to coordinate their operations and eliminate duplications of service.

Special Order No. B-11 eliminates duplication of service between Chicago, Peoria, and Springfield, Ill. Illinois Greyhound Lines, Inc., is to suspend operations between Chicago and Peoria, leaving the Santa Fe Trail Transportation Co. the only carrier on the route. Santa Fe will suspend between Peoria and Springfield, and service between these points will be provided by the Black Hawk Motor Transit Co. At Springfield connections will be made with the Greyhound route to St. Louis. The effect of the order is expected to be the saving of about 37,000 miles per month of scheduled service.

Special Order No. B-12 directs the Santa Fe Trail Transportation Co., Dixie Motor Coach Corporation and Southwestern Greyhound Lines, Inc., to honor each other's tickets between all points common to their lines between Tulsa and Dallas, and to divert passengers to each other for the purpose of relieving overloads and reducing the operation of additional equipment in extra sections. The companies were ordered also to adjust schedules to eliminate duplications in times of departure, and wherever practicable to utilize joint depot facilities. Santa Fe and Dixie were ordered to operate a joint through service of not to exceed four round trips daily, and Greyhound was ordered to operate a through service of not more than five round trips daily.

ODT Appointments

Charles M. Moore, until recently marine superintendent of the Lehigh Valley, has been appointed deputy associate director of the Division of Railway Transport, Office of Defense Transportation, with headquarters at New York. He will have charge of the coordination of railway marine facilities. Another recent appointment in the same Division is that of Ernest A. O'Donnell, former division superintendent of the Southern Pacific, who has become supervisor of rail terminals at Los Angeles, Calif.

In the Division of Storage, James R. Sloane, former vice-president and general manager of the Oil Trading Company, Inc., has been appointed chief of the Raw Materials Section, newly-created to "cooperate with all government agencies on matters concerning the storage of liquids and other raw materials." Louis B. Beardslee, Jr., formerly engaged in industrial property management work with Louis B. Beardslee & Co., Chicago, has been appointed assistant chief of the Storage Division's Real Estate Procurement Section.

In the Divisions of Rates, John C. Howard has been promoted from assistant to the director to assistant director, while Harry Wilson has been appointed assistant to the director. Mr. Howard, who has been with ODT since February, was formerly manager of the rate and tariff division in the United States Rubber Company's general traffic department. Mr. Wilson, a former general freight agent of the Erie was from 1934 until May 31, 1942, vice-chairman of the Trunk Line Association and Traffic Executive Association, Eastern Territory.

Readjustments Have Released 114 Locomotives, 533 Passenger Cars

Voluntary revisions in passenger schedules, services and equipment assignments during the first six months of 1942 by the principal passenger-carrying railroads, have resulted in the release of 114 locomotives and 533 passenger-train cars for the needs of war traffic, according to the Office of Defense Transportation. A daily saving during the six months period of 24,700 passenger train-miles, and 176,000 passenger car-miles as the result of the revisions also was announced.

The figures were contained in a report to the ODT from the Association of American Railroads which, at ODT's request, began the drive among A. A. R. members "to make all adjustments possible so that equipment would be available to meet the constantly-growing traffic in troop movements, and the increasing travel being diverted to the railroads by reason of the curtailment of passenger automobile traffic."

Measured in equipment units, the cars released by the schedule and equipment revisions are 149 mail, express, baggage and combined cars; 150 coaches; 204 Pullman cars of which 63 are club, lounge, observation, tavern or combination cars. In addition to this equipment, 31 rail motor cars have been released. The locomotive and car savings effected by these schedule revisions are entirely apart from a further savings ODT hopes to accomplish through the survey now being conducted by the various State public service commissions. This survey was instituted with a view to eliminating duplicating service in local passenger train and bus schedules, thus permitting transfer of equipment from runs which are lightly patronized to others on which the need is greater.

New York Railroads Reply to Henderson

Railroads serving New York state have asked the Interstate Commerce Commission to deny Price Administrator Henderson's petition of last week seeking to have it either dismiss or indefinitely postpone action on a request of the carriers for a 10 per cent increase in intrastate commutation fares in that state.

As pointed out in last week's issue, the request of the railroads for the increase had been denied by the New York Public Service Commission on February 24, and the carriers appealed to the commission on April 13.

"As in the case of the petition filed by the Office of Price Administration seeking the postponement of the effective date of the order in Ex Parte No. 148 as to increases in rates on specified commodities, the commission is here being asked to disregard considerations named in the Interstate Commerce Act to govern it in determining the lawfulness of rates and fares and to make the problem confronting the Office of Price Administration dominant although that office has no duties or responsibilities with reference to the maintenance of an adequate transportation service," stated the carriers' petition. "The commission, of course, cannot lawfully, and we do not suppose that it would even think of abdicating its duties or responsibilities in favor of the Price Administrator or anyone else."

"We submit," the petition concludes, "that the Office of Price Administration has not made, and could not make, a showing which would justify the commission in dismissing this proceeding or indefinitely postponing it. On the contrary, the commission should prosecute the further hearings in this proceeding at its very earliest convenience. It is sometimes overlooked that the increased railroad wages became effective on September 1, 1941, and it was not until February 10, 1942, that the carriers secured any relief. It will be a manifest injustice to continue to deprive them of the revenues to which they are justly entitled on this New York state commutation traffic, thus perpetuating the undue discrimination against interstate commerce and undue prejudice of interstate communities and travelers which the law prohibits and which it is the duty of the commission to remove."

GENERAL NEWS

I. C. C. Adopts New Rules of Practice

Revision, effective September 15, comes after several months of study

The Interstate Commerce Commission has adopted a revision of its general rules of practice, effective September 15. The revision came after the entire structure of the rules had been undergoing intensive study for several months by the commission's standing committee on rules and reports, aided by a subcommittee from its staff, with the cooperation of a special committee appointed by the Association of Interstate Commerce Commission Practitioners.

Wide distribution was made of a tentative draft of the revision and "a large body of constructive criticism was the result," the commission said. Finally, there was oral argument before the committee on rules and reports.

The present rules originally prescribed for part I of the Interstate Commerce Act are in printed form; the special rules relating to part II are available only in mimeograph form; and no special rules have been prescribed for parts III and IV. The new revision brings the general rules covering all parts of the act, as well as related statutes administered by the Commission, into a single compilation. In so doing an effort has been made to comply with the statutory direction in section 17 (3) that the commission's rules should: "Conform, as nearly as may be, to those in use in the courts of the United States." The general rules now adopted will be supplemented by special instructions in particular cases, or as to particular types of cases, and may be varied in any proceeding by direction of the commission. To permit early publication, the revision is issued in mimeographed form, but it will be printed by the commission in due course. In their arrangement the new rules follow a general pattern of tracing the course of a proceeding from initiation to decision. Approved forms are shown in an appendix.

By definition, "proceedings" are divided into complaints, applications, and investigations. The first class is as the name applies. The second covers the prayer for the granting of any right, privilege, or authority under the act (such as convenience-and-necessity matters, fourth-section applications, etc.). Investigations are defined as matters instituted on the commission's own motion. Present rules do not classify the types of proceedings. Hereforth a fee of $10 will be imposed upon admission to the Commission's bar. There is no fee at present. All persons appearing must conform to the standards of conduct required by the code of ethics of the Association of Interstate Commerce Commission Practitioners.

"Officer" is the new generic term used to describe an examiner, employee board, joint board, or commissioner when functioning in an examining capacity. For the first time rules are prescribed for "employee boards." Such provisions are grouped with those for joint boards, and largely follow those now appearing in the commission's mimeograph document on that subject, dated January 22, 1937.

Respecting pleadings, it is provided that: "Reproduction may be by printing, multilithing, multigraphing, mimeographing, or by any other process, provided the copies are clear and permanently legible." This is more liberal than the present rule, which, among other things, prohibits carbon copies. A brief in excess of 50 pages must be printed. The similar requirement in the present rules is 40 pages. An original and 14 copies of each pleading is the general requirement, with exceptions cross-referenced in the rule itself.

It is provided that if a request for a time change is granted, the party making the request shall promptly so notify all parties to the proceeding and so certify to the commission. Pleaders living in the Far West are accorded additional filing time, but this is uniformly fixed at five days, instead of the varying periods provided in the present rules. In addition to present requirements, it is provided that the certificates of service shall show "simultaneous" service upon other parties, and that service if other than in person, must be "by first-class mail or express." These requirements are new.

Formal and informal complaints must, in the future, disclose whether the complaint contains a claim on any shipment which has been the subject of a previous complaint. Disclosure of the same information is required under the terms of the revised reparation statement which also calls for a statement of the relation of the party paying the charges in question to the shipping transaction. Affirmative provision is made for motions to make more definite and certain either a complaint or an answer. It is provided that the original and two copies of a protest shall be filed with the commission and also shall be served upon applicant. These requirements are more strict than obtain under the present motor-carrier rules.

In addition to present requirements, the new rule for protests against tariffs makes provision for a statement of "what protestant offers by way of substitution." It is further provided that: "The protest simultaneously be served upon the publishing

(*Continued on page 286*)

Passenger Service Ratio Below 100

I. C. C. Bureau of Statistics so suggests in latest monthly review

Reviewing passenger service data in the latest issue of its monthly comment on transportation statistics, the Interstate Commerce Commission's Bureau of Transport Economics and Statistics suggests that the passenger service operating ratio is probably now below 100 "for the first time in more than a decade." The apportionment of expenses to passenger services of the current year is not yet available, but the Bureau relied on the fact that "passenger train-car mile revenue for the first five months of 1942 was 35.6 per cent higher than for the same period in 1941 and the car-mile expense for all services (freight and passenger) was only 5.4 per cent more."

For 1941, the passenger service operating ratio was 114.02 per cent, although the Bureau points out that "the out-of-pocket expenses were probably covered, and hence the passenger service was not a net burden on railway finances." Passenger revenues for the second quarter of this year showed a gain of 84.6 per cent over the comparable 1941 period, being up from $120,673,000 to $222,730,000. The increase for this year's first quarter was 45.3 per cent.

The same trend was shown by freight revenues which were up 27.7 per cent in the first quarter and 38.3 per cent for the second quarter. The Bureau attributes the more rapid rate of increase in the second quarter to three factors: An increase in fares and rates in February and March; a growth in the number of passengers carried and tons originated; and an increase in the distance carried of each unit of traffic, both freight and passenger.

June freight revenues were 32.8 per cent above June, 1941, while passenger revenues were up 83.5 per cent. The rise in freight revenue ranged from 7.8 per cent in the Pocahontas region to 57.8 per cent in the Southwestern region. June mail revenues were down 0.9 per cent from June, 1941.

Discussing the carloading figures, the Bureau notes that for the four weeks ended July 25 there was a decline of 2.7 per cent under the corresponding 1941 period; but it goes on to point out that there was an increase of 5.9 per cent if the l. c. l. loadings be eliminated. In the latter connection there is cited the recent Office of Defense Transportation statement reporting increases in average tons per l. c. l. car. Meanwhile, July loadings of grain and

grain products were 15.9 per cent below the July, 1941, loadings. According to the Bureau, this was due to the problem of terminal storage facilities which made necessary the introduction of the permit system beginning May 20; and the difference between the cash value of grain and its loan value which is encouraging farmers to store their grain on the farm rather than sell it for cash.

With respect to operating expenses, it is pointed out that the operating ratio continued to decline, reaching 60.7 in June as compared with 65.7 for June, 1941. Nevertheless 50 of the 136 Class I roads experienced a rise in their operating ratios, and 26 showed a rise of more than five points. The ratio of the Elgin, Joliet & Eastern rose from 53.7 to 64.7, while that of the Norfolk & Western was up from 47.7 to 57.2. Meanwhile there were marked declines in the ratios of other roads, including the drop from 99.3 to 66.8 reported by the Florida East Coast.

Analysis of net railway operating income by districts shows that for June as compared with June, 1941, there was a range from the 56.7 per cent increase in the Western district to the 45 per cent decrease for the Pocahontas region. The increase in the Eastern district was 13.3 per cent, and in the Southern region it was 50.7 per cent. The increase in tax accruals for the same period was: Eastern district, 84.2 per cent; Southern region, 177.3 per cent; Pocahontas region, 82 per cent; Western district, 144.7 per cent. The effects of tax accruals and increased operating expenses upon the railway operating income as a per cent of operating revenues are shown by the Bureau in a tabulation of data for "leading Class I railroads." Commenting on such data, the Bureau says: "It may be noted that the Missouri Pacific's net railway operating income for June equalled 34.16 per cent of gross revenues, while all taxes amounted to only 5.56 per cent. In the case of the Louisville & Nashville, and the Illinois Central, however, net railway operating income was less than 12 per cent of gross operating revenues. Taxes accrued on the Louisville & Nashville and Chesapeake & Ohio exceeded 30 per cent of gross. For the Baltimore & Ohio and the Illinois Central maintenance of equipment expenses exceeded 20 per cent of gross operating revenues."

As for net income, attention is called to the fact that while it is "much above last year," dividend appropriations are "running well below last year." The improvement in freight train and car performance for May, 1942, over May, 1941, is appraised as being "in some respects as great or greater than the improvement which took place between May, 1929, and May, 1941." In this connection the Bureau gives performance statistics, calling special attention to the fact that net ton-miles per car-day increased by 35.7 per cent in the 1929-1941 period, while there was a further improvement of 25.5 per cent in the one-year period from May, 1941, to May, 1942.

In addition to its comment on railway data, the statement contains the usual discussions of truck, bus, pipe line and water carrier statistics. Water carriers filing reports with the I. C. C. had operating revenues amounting to $21,603,200 in the first quarter of 1942, compared with $42,792,034 a year ago, a decline of 49.52 per cent. "This decline," says the Bureau, "is largely explained by the reduction in service of the large carriers in the Atlantic and Gulf and Pacific groups. For the group operating on the Mississippi river and tributaries, the decline in revenues was 12.67 per cent. The most important traffic of the Great Lakes is not represented in these statistics because carriers of one commodity in bulk, such as coal and ore, are not required to report."

Adopt Simplified Design for Tie Plates

With the object of expediting manufacture through simplification and standardization of tie plates in accordance with requests made by Joseph B. Eastman, director of the Office of Defense Transportation, the Construction and Maintenance section of the Association of American Railroads has adopted emergency provisions, approved by the American Railway Engineering Association, to be effective for the duration of the war, which modify the designs for tie plates for 112-lb. and 131-lb. rail and which supersede the designs for tie plates that appear in the A. R. E. A. manual.

The new designs provide for two sizes of plates, 7¾ in. by 13 in. and 7¾ in. by 11 in., for 112-lb. rail and two sizes, 7¾ in. by 14 in. and 7¾ in. by 12 in., for 131-lb. rail, for a cant of approximately 1 in 40, eccentricity of ⅜ in., double shoulders, a flat rail seat and a flat bottom, shoulder extensions with sloping top surfaces and the thickness under the outside shoulder to be ⅛ of the length of the outside shoulder extension to the next larger 1/32 in.

The emergency provisions further provide that: "As manufacturers have equipment for producing a number of tie plate

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS

Compiled from 132 Reports (Form IBS) Representing 136 Steam Railways
(Switching and Terminal Companies Not Included)

Income Items	All Class I Railways: For the month of May 1942	For the month of May 1941	For the five months of 1942	For the five months of 1941
1. Net railway operating income	$109,672,990	$88,104,434	$432,969,068	$340,505,880
2. Other income	11,475,239	11,643,920	58,062,624	56,441,751
3. Total income	121,148,229	99,748,354	491,031,692	396,947,631
4. Miscellaneous deductions from income	3,211,205	2,283,064	13,332,245	11,801,195
5. Income available for fixed charges	117,937,024	97,465,290	477,699,447	385,146,436
6. Fixed charges:				
6-01. Rent for leased roads and equipment	14,778,718	13,861,231	69,384,501	64,350,235
6-02. Interest deductions[1]	37,033,310	38,797,143	185,176,605	192,615,517
6-03. Other deductions	117,601	119,163	587,528	593,308
6-04. Total fixed charges	51,929,629	52,777,537	255,148,634	257,559,060
7. Income after fixed charges	66,007,395	44,687,753	222,550,813	127,587,376
8. Contingent charges	2,339,112	1,547,276	11,012,285	7,703,065
9. Net income	63,668,283	43,140,477	211,538,528	119,884,311
10. Depreciation (Way and structures and Equipment)	20,213,607	18,073,533	97,243,260	89,201,002
11. Amortization of Defense Projects	6,754,326	.....	26,417,772	.....
12. Federal income taxes	64,309,800	14,772,502	205,025,169	48,019,626
13. Dividend appropriations:				
13-01. On common stock	17,936,901	19,134,677	41,848,955	45,416,313
13-02. On preferred stock	6,674,321	6,022,597	12,607,599	11,231,673
Ratio of income to fixed charges (Item 5 ÷ 6-04)	2.27	1.85	1.87	1.50

Selected Asset and Liability Items	All Class I Railways: Balance at end of May 1942	Balance at end of May 1941
20. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	$474,049,083	$561,099,759
21. Cash	$817,914,286	$712,402,038
22. Temporary cash investments	177,204,507	92,483,683
23. Special deposits	138,964,351	103,726,215
24. Loans and bills receivable	1,027,931	1,412,870
25. Traffic and car-service balances—Dr.	39,804,777	29,049,167
26. Net balance receivable from agents and conductors	109,235,564	67,170,403
27. Miscellaneous accounts receivable	288,703,325	143,263,989
28. Materials and supplies	533,690,173	373,492,070
29. Interest and dividends receivable	23,364,126	20,795,559
30. Rents receivable	1,400,882	1,330,538
31. Other current assets	27,838,070	7,284,527
32. Total current assets (items 21 to 31)	2,159,147,992	1,552,411,059
40. Funded debt maturing within 6 months[2]	$75,503,920	$72,029,386
41. Loans and bills payable[3]	$32,077,555	$77,199,336
42. Traffic and car-service balances—Cr.	81,098,266	48,964,299
43. Audited accounts and wages payable	349,141,098	265,325,216
44. Miscellaneous accounts payable	63,133,000	49,815,449
45. Interest matured unpaid	46,640,249	31,418,318
46. Dividends matured unpaid	4,907,214	1,632,991
47. Unmatured interest accrued	87,471,324	87,829,199
48. Unmatured dividends declared	38,191,385	36,226,925
49. Unmatured rents accrued	29,862,973	30,582,708
50. Accrued tax liability	502,553,540	242,014,382
51. Other current liabilities	61,418,667	36,770,574
52. Total current liabilities (items 41 to 51)	1,296,495,271	907,779,397
53. Analysis of accrued tax liability:		
53-01. U. S. Government taxes	384,138,352	126,635,028
53-02. Other than U. S. Government taxes	118,415,188	115,379,354

[1] Represents accruals, including the amount in default.
[2] Includes payments of principal of long-term debt (other than long-term debt in default) which will become due within six months after close of month of report.
[3] Includes obligations which mature not more than 2 years after date of issue.

NET INCOME OF LARGE STEAM RAILWAYS

(Switching and Terminal Companies Not Included)

Name of railway	Net Income After Depreciation and Amortization of Defense Projects — For the five mos. of May 1942	1941	Net Income Before Depreciation and Amortization of Defense Projects — For the five mos. of May 1942	1941
Alton	$640,575	* $241,055	$758,828	* $127,092
Atchison, Topeka & Santa Fe System[3]	16,774,760	5,340,633	22,976,565	10,402,336
Atlantic Coast Line	8,938,426	4,719,977	10,851,532	5,705,581
Baltimore & Ohio	9,410,407	5,885,617	13,935,987	9,013,596
Boston & Maine	2,710,313	2,488,930	3,500,725	3,080,888
Central of Georgia[2]	609,981	161,318	1,068,222	521,818
Central of New Jersey[2]	1,006,042	* 902,149	1,591,896	* 352,500
Chesapeake & Ohio	9,924,103	11,164,570	14,266,088	14,735,324
Chicago & Eastern Illinois	645,931	684,942	905,917	942,432
Chicago & North Western[2]	595,567	* 1,396,059	2,925,955	614,964
Chicago, Burlington & Quincy	5,658,165	2,622,359	8,497,675	4,933,886
Chicago Great Western	574,493	481,745	815,885	717,609
Chicago, Milwaukee, St. Paul & Pacific[2]	2,137,937	* 33,790	5,912,464	2,490,310
Chicago, Rock Island & Pacific[2]	3,204,246	579,596	5,066,363	2,398,469
Chicago, St. Paul, Minneapolis & Omaha	* 441,230	* 722,749	* 191,478	* 498,425
Delaware & Hudson	1,980,808	1,016,941	2,832,187	1,494,420
Delaware, Lackawanna & Western	1,554,786	1,342,909	2,838,040	2,373,810
Denver & Rio Grande Western[2]	1,533,093	* 2,133,409	2,344,974	* 1,586,653
Duluth, Missabe & Iron Range	855,700	1,212,177	1,475,575	1,579,717
Elgin, Joliet & Eastern	839,025	2,386,009	2,054,980	2,899,297
Erie	4,783,213	2,538,543	7,588,470	4,080,044
Grand Trunk Western	* 752,255	1,012,274	* 179,712	1,499,164
Great Northern	2,954,361	1,009,337	6,336,647	2,810,679
Gulf, Mobile and Ohio	1,064,784	749,322	1,463,772	1,103,346
Illinois Central	4,343,252	4,200,340	7,783,801	6,994,878
Lehigh Valley	788,748	1,243,141	2,340,628	2,077,533
Long Island	* 504,249	* 613,214	390,313	37,935
Louisville & Nashville	4,820,781	5,671,488	7,818,466	7,525,382
Minneapolis, St. Paul & Sault Ste. Marie[2]	* 2,240,726	* 2,808,792	* 1,349,733	* 2,276,477
Missouri-Kansas-Texas	1,037,852	* 926,002	1,512,907	* 445,072
Missouri Pacific[2]	6,725,841	* 1,044,139	8,702,092	833,175
New York Central[4]	11,351,125	8,987,121	20,990,848	16,557,897
New York, Chicago & St. Louis	3,228,271	3,414,835	4,170,468	4,107,334
New York, New Haven & Hartford[2]	5,485,605	1,352,397	7,268,531	2,737,255
Norfolk & Western	7,964,377	11,093,051	12,653,258	13,854,505
Northern Pacific	1,977,477	* 307,991	5,451,444	1,179,876
Pennsylvania	15,498,988	13,956,973	29,936,343	25,777,030
Pere Marquette	872,673	1,494,982	2,145,226	2,457,932
Pittsburg & Lake Erie	1,695,797	2,207,793	3,030,615	3,208,752
Reading	4,596,814	3,583,937	6,605,279	4,850,327
St. Louis-San Francisco[2]	1,246,309	* 1,191,624	2,508,706	61,298
St. Louis, San Francisco & Texas	84,155	* 17,681	84,155	* 17,681
St. Louis Southwestern[2]	2,254,423	1,512,639	2,549,978	1,784,916
Seaboard Air Line[1]	6,119,210	498,729	7,168,439	1,512,612
Southern	8,049,818	5,772,223	11,795,640	7,326,662
Southern Pacific[5]	20,002,822	9,652,089	26,569,999	13,012,429
Texas & Pacific	1,914,613	1,104,211	2,461,232	1,632,281
Union Pacific (including leased lines)	9,615,606	3,368,660	13,893,682	6,758,599
Wabash	1,974,095	633,761	3,272,021	1,538,229
Yazoo & Mississippi Valley	3,256,877	271,526	3,484,507	499,358

* Deficit.

[1] Report of receiver or receivers.

[2] Report of trustee or trustees.

[3] Includes Atchison, Topeka & Santa Fe, Gulf, Colorado & Santa Fe, and Panhandle & Santa Fe.

[4] Includes Boston & Albany, lessor to New York Central.

[5] Includes Southern Pacific Company, Texas & New Orleans, and leased lines. The report contains the following information: "Figures reported for Southern Pacific Transportation System exclude offsetting debits and credits for interest on funded securities and rentals for leased properties between companies included therein. Operations for 1942 of separately operated Solely Controlled Affiliated Companies (excluding results for Southern Pacific Railroad Company of Mexico), not included in income results for the System, resulted in a net income of $55,461 for the month and a net loss of $323,309 for the period. These results include $195,552 for the month and $977,860 for the period representing interest on bonds of such companies owned by Southern Pacific Company not taken into income by SP Co. and therefore, not included in the 1942 income results for the System. The combined results for 1942 for Southern Pacific Transportation System and separately operated Solely Controlled Affiliated Companies (excluding SP. RR. Co. of Mexico) amounted to a net income of $5,162,849 for the month and $20,657,374 for the period. Figures herein given exclude results of SP. RR. Co. of Mexico for the reason that policy was adopted January 1, 1940 of making no further advances to that company, it being required to conduct its operations entirely within its own resources."

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

sections for use with each of various rails, it would be wasteful not to use existing equipment during the present emergency. If production were confined to a single tie plate section for each rail, some manufacturers would require additional equipment to produce the one section in sufficient quantity. When existing equipment for the production of tie plates for 112-lb. and 131-lb. rail is no longer available, or the production of a specific design of tie plate for either of these rail sections would interfere with the war effort," tie plates of the new simplified design shall be provided.

"Tie plates for 127-lb. and 152-lb. rails shall be furnished according to the one prevailing design of tie plate for each of these two sections of rail. As only a comparatively small number of tie plates are needed for use with rails weighing 100 lb. per yard or less, and as the manufacturers have rolls for these plates, it is recommended that their use be continued. However, if this practice should interfere with the war effort, it is recommended that alternate designs be substituted.

"Specifications for the tie plates referred to are subject to Emergency Provisions prohibiting the use of copper-bearing steel dated March 19, 1942."

These emergency provisions, dated July 24, and drawings of the four simplified designs of tie plates have been published in a pamphlet which is being mailed to all member roads of the A. A. R.

July Export Traffic

Cars of export freight other than grain or coal unloaded at Atlantic, Gulf and Pacific ports in July totaled 72,102 cars compared with 54,982 in July 1941, or an increase of 31 per cent, according to the Association of American Railroads.

Cars of grain for export unloaded in July at those ports totaled 2,319 cars compared with 6,273 in the same month last year. This traffic is being handled with no serious congestion, due to the continued cooperation of all concerned, particularly the steamship lines, exporters and shippers, the A. A. R. said.

Freight Car Loading

Loading of revenue freight for the week ended August 8 totaled 849,752 cars the Association of American Railroads announced on August 13. This was a decrease of 13,776 cars, or 1.6 per cent, below the previous week, a decrease of 28,753 cars, or 3.3 per cent, below the corresponding week in 1941, but an increase of 122,679 cars, or 16.9 per cent, above the same week in 1940.

As reported in last week's issue, loadings of revenue freight for the week ended August 1 totaled 863,528 cars, and the summary for that week, compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For Week Ended Saturday, August 1

Districts	1942	1941	1940
Eastern	156,760	181,785	146,226
Allegheny	187,984	193,130	153,964
Pocahontas	57,086	58,379	50,274
Southern	121,185	120,762	97,448
Northwestern	141,096	142,161	120,250
Central Western	126,409	128,315	104,917
Southwestern	73,008	57,490	44,848
Total Western Roads	340,513	327,966	270,015
Total All Roads	863,528	882,022	717,927
Commodities			
Grain and grain products	43,618	46,140	40,690
Live stock	11,789	9,751	9,116
Coal	165,723	166,167	122,716
Coke	13,819	13,109	10,657
Forest products	55,462	49,644	36,610
Ore	88,430	77,228	68,547
Merchandise l.c.l.	89,575	155,726	150,286
Miscellaneous	395,112	364,257	279,305
August 1	863,528	882,022	717,927
July 25	855,522	897,564	718,038
July 18	857,067	899,370	730,460
July 11	855,124	876,142	736,783
July 4	753,855	740,359	637,169
Cumulative Total, 31 Weeks	25,245,101	24,147,189	20,454,912

In Canada.—Carloadings for the week ended August 1 totaled 66,246, compared with 66,540 in the previous week and 63,144 in the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Aug. 1, 1942	66,246	35,443
July 25, 1942	66,540	35,872
July 18, 1942	64,989	35,546
Aug. 2, 1941	63,144	30,727
Cumulative Totals for Canada:		
Aug. 1, 1942	1,964,131	1,019,824
Aug. 2, 1941	1,802,988	906,170
Aug. 3, 1940	1,574,119	753,647

B. of R. T. Withdraws Complaint

Acting upon the request of the complainant, the Interstate Commerce Commission has dismissed the complaint wherein the Brotherhood of Railroad Trainmen alleged that certain railroads had not properly equipped their locomotives with adequate seating arrangements for head-end brakemen or trainmen. In a letter to the commission, M. H. Miller, national legislative representative of the Brotherhood, asked

that the complaint be dismissed without prejudice because the complainant did not desire to press it in the war period against the three roads with which no agreement on the matter has been reached. The proceeding was docketed as No. 28604.

Correction

S. F. Udstad, assistant chief, Rolling Stock Section, Transportation Branch, War Production Board, was incorrectly reported in the *Railway Age* of August 8, page 209, as on leave from the General American Transportation Corporation instead of the American Car & Foundry Co.

I.C.C. Extends Control System for Grain Shipments

Extending to additional markets its permit system for the handling of the 1942 grain crop, the Interstate Commerce Commission has by amendments Nos. 1 and 2 to Service Order No. 80 appointed agents at Louisville, Ky., Indianapolis, Ind., and Cincinnati, Ohio.

Latimer Reappointed Chairman of Railroad Retirement Board

Chairman Murray W. Latimer of the Railroad Retirement Board has been reappointed by President Roosevelt for another five-year term beginning August 29. The appointment went to the Senate on August 6, but the Senate committee on interstate commerce had not acted upon it when this issue went to press.

Burlington Affiliate Seeks I.C.C. Authority

The Burlington Transportation Company, a motor carrier subsidiary of the Chicago, Burlington & Quincy, has asked the Interstate Commerce Commission for authority to issue two promissory notes in the amounts of $1,719,940 and $150,000 as evidence of amounts which have been advanced to it by the parent company. The notes will mature January 1, 1952.

Firemen's Wage Talks Go On

Discussions of the proposals of the Brotherhood of Locomotive Firemen and Enginemen for certain changes in basic wage rates and differentials (outlined in *Railway Age* of July 4, page 33), which have been in progress between committees representing the union and the eastern and southeastern railroads, were resumed in New York August 5, and again adjourned, after three days' consideration of the complex adjustments involved, to another conference to begin August 13.

Government Seeks Rate Clerks

"Hundreds" of freight and passenger rate clerks are needed by the government—so the Civil Service Commission announces—as a result of the tremendous transportation movements growing out of the war effort. Positions are open paying $2,300 to $2,600 per year, and applications will be accepted by the Commission until the needs of the service have been met. Appointments will be "for the duration."

Men who qualify will be required to compute freight rates and passenger fares and to audit freight and passenger transportation accounts of rail, water, highway, and air carriers, and appropriate experience in such work is required. No written test will be given, but applicants will be rated on the basis of experience and special training. A minimum experience of three years is required, either with a carrier or a commercial firm, in positions calling for knowledge and use of classifications, tariffs, and I. C. C. regulations. Application forms may be obtained from Civil Service offices in the large cities, from post offices of the first or second class, or directly from Washington.

Another Request for Delay of Power Reverse Gear Order

The Terminal Railroad Association of St. Louis has come along with an application like those filed recently by several other roads, asking the Interstate Commerce Commission for an extension beyond the present September 1 deadline of the time within which locomotives must be equipped with power reverse gears. In his notice on the application I. C. C. Secretary W. P. Bartel said that the applicant, with four locomotives to be equipped, had stated that "it has been advised by the War Production Board that said Board cannot recommend priority assistance in obtaining the necessary materials to install said gears."

A.A.R. Will Issue Revised Edition of Accounting Classification

Because of the many changes occasioned by Interstate Commerce Commission orders issued this year to become effective January 1, 1943, the Finance, Accounting, Taxation and Valuation Department of the Association of American Railroads will issue a completely revised edition of the commission's accounting classification. The edition, according to A. A. R. Vice-President E. H. Bunnell, will be available next January, but meanwhile, in response to numerous requests, a "limited supply" of an advance loose-leaf edition will be ready for distribution by October 1.

The advance edition will incorporate all changes contained in orders issued up to the time it goes to press. The price of both the advance loose-leaf and regular bound and loose-leaf editions will be 30 cents per copy to railroads and railroad employees; and 60 cents to others.

July Employment 10.81 Per Cent Above Last Year

Railroad employment increased another 1.83 per cent—from 1,292,595 to 1,316,365—during the one-month period from mid-June to mid-July, while the July total was 10.81 per cent above July, 1941, according to the Interstate Commerce Commission's latest compilation based on preliminary reports. The index number, based on the 1935-1939 monthly average as 100 and corrected for seasonal variation, was 125.7 for July, as compared with June's 123.9 and July, 1941's 113.5.

July employment in all groups was above that of the previous month, the range being from the 0.59 per cent rise in the group embracing transportation employees, other than train, engine and yard, to the 4.75 per cent increase in the maintenance of way and structures group. Meanwhile, all groups were above July, 1941, the increases ranging from 6.3 per cent for executives, officials, and staff assistants to 13.21 per cent for the professional, clerical, and general group.

Accounting Order

The principal amounts of contractual obligations incurred in the acquisition of equipment, as well as the par value of equipment securities, are to be carried in a single balance sheet account begining January 1, 1943, according to an Interstate Commerce Commission order dated July 30. In other words, the effect of the order will be to transfer to Account 756½, Equipment Obligations, amounts due on conditional sales, etc., which are now carried as deferred liabilities.

Corrections in Forwarder Act

President Roosevelt has signed S. 2642, which makes certain corrections in the recently-enacted Part IV of the Interstate Commerce Act, covering the regulation of freight forwarders.

Pullman Stops Advance Sale of Section Accommodations

The sale of section accommodations for single occupancy in advance of train departure will be discontinued by the Pullman Company on August 15, as another step to meet wartime travel conditions. However, where upper berth space is available and will not be needed for separate occupancy by another passenger, Pullman conductors on the train may sell sections for overnight use. According to E. P. Burke, passenger traffic manager, the action is necessary because of record-breaking troop transport and the need for making the most efficient use of existing accommodations for civilian passengers.

"Limiteds" May Have to Do Local Work

Suggesting that schedules of "limited" passenger trains might be revised to make them take on the work of discontinued locals, the Interstate Commerce Commission, Division 5, has denied an application of the Railway Express Agency, Inc., for a certificate covering trucking operations along the Michigan Central's Saginaw branch between Jackson, Mich., and Saginaw. The R. E. A. proposal came when the M. C. discontinued two passenger trains on the branch, which remains served by two other trains making stops at two of six local points.

Noting that "motor vehicle equipment as well as rail equipment should be utilized to the best advantage in view of the present emergency," the commission goes on to suggest that "conceivably" the limiteds "could stop at the other four local points with some slight revision of their schedules." The commission conceded that there may be objections to its suggestion, and disclaimed any purpose to enter the field of R. E. A.'s managerial discretion. Nevertheless, it held that "before any grant of authority should be made here, we believe applicant should clearly establish that the

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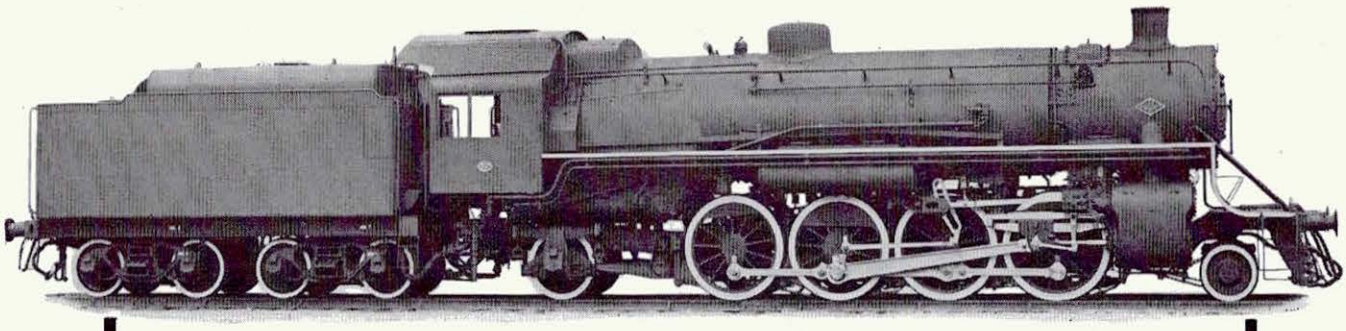


They're in the Army Now!

LIMA 2-8-2 TYPE LOCOMOTIVES

Built for the U. S. Army

In the pursuit of peace-time commerce or in waging a war for freedom, steam locomotives are an essential factor.

Typical of the locomotives ordered by the U. S. Army is the one illustrated above. Several of these 2-8-2 Type Steam Locomotives were recently delivered by Lima to the U. S. War Department.

WEIGHT IN WORKING ORDER, POUNDS			TRACTIVE POWER	TENDER
On Drivers	Engine Truck	Total Engine	35,000 lbs.	131,000 lbs.
144,000	19,500	200,000		
WHEEL BASE			FIREBOX	GRATE AREA
Driving	Engine	Engine & Tender	Inside	
15'–9"	32'–9"	58'–6"	102 1/8" x 66 1/4"	47 sq. ft.
BOILER		CYLINDERS		DIAMETER
Diameter	Pressure	Diameter	Stroke	Driving Wheel
68" O.D. at Front	200 lbs.	21"	28"	60"

LIMA LOCOMOTIVE WORKS — LIMA LOCOMOTIVE WORKS INCORPORATED — INCORPORATED, LIMA, OHIO

proposed service cannot be performed in an adequate and satisfactory manner by existing rail facilities." The decision is in No. MC-66562 (Sub-No. 380), and the majority report represents the view of Commissioners Rogers and Patterson; Commissioner Mahaffie's dissent was noted.

June Accident Statistics

The Interstate Commerce Commission on August 7 made public its Bureau of Transport Economics and Statistics' preliminary summary of steam railway accidents for June and this year's first six months. The compilation, which is subject to revision, follows:

Item	Month of June		6 mos. ended with June	
	1942	1941	1942	1941
Number of train accidents*	1,082	780	6,236	4,128
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	212	243	906	948
Injured	139	190	726	858
Passengers on trains:				
(a) In train accidents*				
Killed	8	..	20	4
Injured	22	38	449	600
(b) In train-service accidents				
Killed	8	2	18	4
Injured	144	167	955	837
Travelers not on trains:				
Killed	3	1	8	2
Injured	55	58	363	437
Employees on duty:				
Killed	63	53	419	309
Injured	2,787	2,186	15,080	10,657
All other nontrespassers:**				
Killed	135	142	1,074	965
Injured	394	414	3,320	3,170
Total—All classes of persons:				
Killed	429	441	2,445	2,232
Injured	3,541	3,053	20,893	16,559

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than $150 to railway property.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and nontrespassers,* were as follows:

Persons:				
Killed	120	123	982	875
Injured	259	272	2,416	2,222

Roosevelt Wishes St. Lawrence Project Were Now Complete

President Roosevelt last week told Senator Aiken, Republican of Vermont, that "it is indeed unfortunate that the St. Lawrence project is not now a reality to aid in strengthening both the United States and Canada in the task of winning the war." The President made that statement in reply to a letter wherein Senator Aiken had appealed for development of the seaway, and particularly the Champlain cut-off, as a means of "eliminating considerable danger now due to the submarine menace and developing permanently a mighty resource which will add immeasurably to the safety and welfare of our country." The letters were inserted by Mr. Aiken into the August 6 Congressional Record.

It was President Roosevelt's view that due consideration should be given to the suggested Lake Champlain cut-off, "after the development of the St. Lawrence is assured." The cut-off, as the senator visualized it, would permit Atlantic vessels to avoid "over a thousand miles of submarine infested waters by sailing up the St. Lawrence river and down Lake Champlain and the Hudson to New York City." He criticized railroad opposition to the waterway, claiming that if anything can save the small railroads of northeastern New York and New England, "it is the development of the St. Lawrence seaway and the Champlain cut-off."

"The real reason for the protests against this development," Senator Aiken went on, "is that the railroads have interlocking directorates with the power companies of New York and New England, who feel that with the development of 2,250,000 horsepower, the people of the North will no longer be required to pay high tribute to them in the form of excessive rates based on inflated valuations." The Senator is convinced that "all transportation agencies" would share "in the increased prosperity" which he predicts will come "if we can break the shackles of the narrow outlook of conservative railroad finance."

OEM Issues Handbook on "War Facts"

The Office of Emergency Management has issued a handbook for speakers on war production entitled, "War Facts." The material in the book, says the foreword, has been compiled to help speakers explain the scope, nature, and effect of the production program and to give Americans in all walks of life an idea of what their contributions can be. Among the various chapters in the booklet is one entitled, "Moving the Armaments: Transportation."

"This war, more than any other war in history, is a battle of transportation," declares the booklet. "Communication lines must be kept open and transport facilities must be available whenever and wherever they are needed. The army which can maintain its supply routes most efficiently, which can keep food and munitions and armaments rolling to the front in a never-ending stream, is the army which will win."

"Come what may," the chapter on transportation concludes, "the railroads, the seaways, the highways, and the airways will keep functioning, ready to speed the machines of war to the front lines. Our transport lines rank second only to the production plants themselves in getting guns and planes and tanks into the hands of our fighting men. Nothing is being left undone to keep them at peak efficiency.

I.C.C. Denies Carriers' Rate Petition

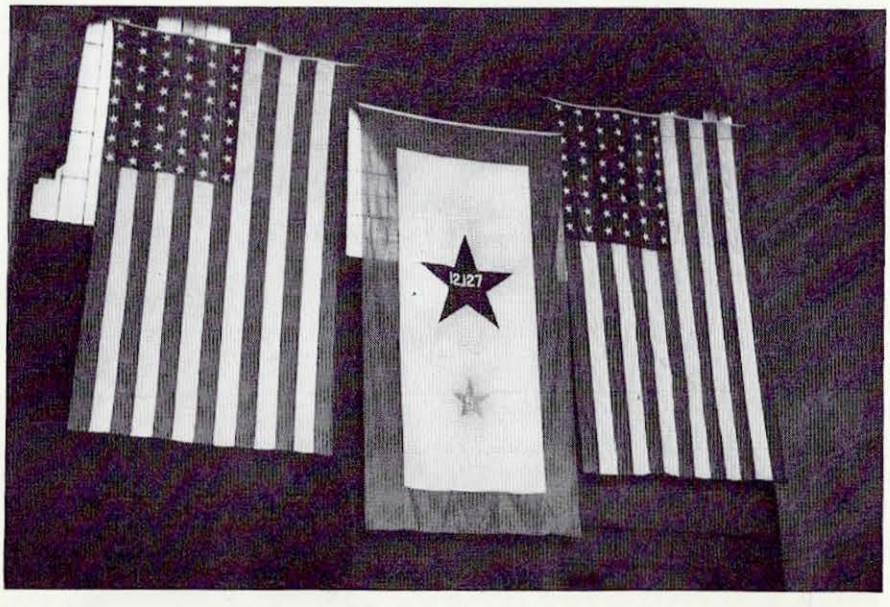
Secretary Bartel of the Interstate Commerce Commission has advised 15 midwestern railroads that the commission has voted, in the absence of a request by the court where the matter was pending, to deny their petition seeking an order asking it to institute an inquiry to determine the proper charges applicable from May 1, 1939, to July 1, 1940, for the transportation of fresh meats, and fresh meats salted, in carloads, or in carloads mixed with other meat products, from and to the points in eastern trunk line and New England territories.

The carriers in their petition pointed out that the complaint be dismissed without have sued the railroads for a total of $514,652 in overcharges, while the railroads have counterclaimed for a total of $63,953.

1942 Christmas Trees Will Ride in Box Cars

Suggesting that it is not too early to consider the car supply for shipping 1942 Christmas trees, Chairman W. C. Kendall of the Car Service Division has requested transportation officers to issue instructions that the shipments shall be made in box or automobile cars, and to refuse to use flat cars or gondolas for such shipments.

* * *



Banner Honors 12,127 Pennsylvania System Employees in Service

Unfurled at Pennsylvania Station, New York, on August 8, in a brief ceremony led by George Le Boutillier, vice-president of the Pennsylvania, the banner also indicates with its smaller gold star that five of these men have died in service. A similar banner is displayed at the 30th Street Station, Philadelphia.

News Department continued on next left-hand page.

THE FRANKLIN SYSTEM OF STEAM DISTRIBUTION

*Trade Mark Registered U. S. Patent Office

THE LOCOMOTIVE BOOSTER

INCREASED CAPACITY FOR OVERWORKED LOCOMOTIVES

The unprecedented increase of traffic and the difficulty of obtaining new power have imposed a tremendous burden on our railroads. Therefore, it is imperative that they increase the capacity of existing power.

The means for doing this is at hand.

The Franklin System of Steam Distribution provides at least a third more train load-speed capacity.

The Booster* increases the drawbar pull for starting, accelerating and in any tight place.

With these capacity-increasing factors your locomotives will haul more tonnage at higher speeds.

FRANKLIN RAILWAY SUPPLY COMPANY, INC. NEW YORK CHICAGO

In Canada: **FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL**

The request was made "in view of the heavy demand for flat and gondolas for the movement of military impedimenta, war armament, and essential commodities closely related thereto."

Mr. Kendall told of a recent interview with one of the largest receivers of Christmas trees, who said that "in previous years he has handled many box cars loaded with Christmas trees satisfactorily." In addition to the proposed ban on use of flats and gondolas, it is suggested that stock cars not be used, "for the reason that there will be an exceptionally heavy movement of livestock this year at this same time."

Brake Shoes Must Fit Heads Better

According to a circular letter recently issued to the members of the A. A. R., Mechanical Division, the committee on Brakes and Brake Equipment reports that an inspection of over 34,000 brake beams disclosed approximately 50 per cent of all removals due to worn heads. The worn head condition is a direct result of relative motion between the brake shoe and the brake head, the better the fit between these two parts being, the less they move with respect to each other and consequently minimize wear.

The Mechanical Division manual on Standard and Recommended Factors shows the dimensions of standard gages used in gaging brake heads and brake shoes, and in order to conserve material as much as possible and extend the life of brake beams, the committee recommends that sufficient heads and shoes be gaged as received from the source of supply to insure that they meet the limits imposed by the gages.

I. C. C. Adopts New Rules of Practice

(Continued from page 281)

carrier, freight forwarder, or agent, and upon other persons known by protestant to be interested." These requirements are new.

With respect to default in investigation and suspension cases, it is provided: "If within a time period stated in that order [instituting an I.&S. proceeding] a respondent fails to comply with any requirement specified therein respondent shall be deemed in default and to have waived any further hearing." This is new.

Present shortened procedure is retained. That procedure is based upon consent. Provision also is made for modified procedure which would not be dependent upon consent, and oral hearing would be confined to matters upon which there is disagreement. Orders will be used under the new modified procedure, and it is provided that failure to comply with an order will result in default.

Under the new hearing rules the commission may confine the service of notice of a change of time or place assigned for hearing, or of any adjourned, further, or supplemental hearing to those only who have indicated to the commission a desire to be notified, at their own expense if telegraphic advice becomes necessary, of any such change. This puts into rule form a practice which has been in effect for some time in the administration of certain provisions of the Act. Provisions modeled upon the federal civil rules are included for the holding of prehearing conferences which, "in order to induce candor in the discussion of the issues and procedure," are to be privileged as to facts disclosed therein.

A petition for leave to intervene not tendered at the hearing in an application proceeding under part II hereafter shall be served by petitioner. Under the present printed rules the commission undertakes to serve all petitions in intervention. Participation in commission proceedings without the filing of a petition in intervention would be permitted under certain circumstances.

Provision is made that evidence admissible under rules of general federal law shall also be admissible before the Commission; and a liberal application of the rules of evidence is required. "Canned" testimony expressly is made permissible under conditions safeguarding against abuse. No free copies of any transcript will be furnished in the future. This follows action taken recently by the commission.

Reply briefs are to be permitted under certain circumstances not permitted under present rules, while provision is made for the filing of exceptions where there has been no prior hearing and a hearing is sought.

The only limitation on the filing of petitions for reconsideration contained in the current printed rules relates to reparation. In the current motor-carrier rules the only similar time limitation pertains to a limited class of cases. The new rule provides: "Except for good cause shown, and upon leave granted, petitions under this rule must be filed within 30 days after the date of service of a decision or order granting an application in whole or in part, and within 60 days after the date of service of any other character of decision or order." A successive petition on the same ground which has been considered and denied by the entire commission or by an "appellate division" is not to be entertained. This is the first time any rule has been prescribed mentioning appellate divisions.

Changes proposed in the present approved forms are of minor verbal character, and are designed to make such forms conform to the related new proposed rules. The rules, it is emphasized, "are to be liberally construed to secure just, speedy, and inexpensive determination of the issues presented."

Governors Attempt to Curtail Crossing Accidents

Following appeals by W. M. Jeffers, president of the Union Pacific, in which he called attention to the menace of grade crossing accidents to our war efforts, the governors of Nebraska, Idaho and Wyoming have issued proclamations calling upon drivers of all motor vehicles to stop vehicles before crossing railroad tracks. Chief executives of other states traversed by the Union Pacific have also been asked to take similar action. The Oregon State Highway Commission in response to Mr. Jeffers' appeal, recently entered an order requiring all motor vehicles to stop at the railroad crossings of state highways.

The proclamations point out that accidents at crossings have caused serious delays and damage to vitally needed war equipment and have endangered the lives of persons and troops being carried. They also seek the elimination of crossings wherever possible and ask all people to stop all vehicles before crossing railroad tracks.

Credit Rules and Released-Rate Authority for Forwarders

Rules and regulations governing the extension of credit by motor common carriers have been made applicable to freight forwarders subject to Part IV of the Interstate Commerce Act, according to an Interstate Commerce Commission order entered August 10 with an August 14 effective date.

Generally, the rules provide that the truckers (and now the forwarders) shall have seven days in which to render bills and seven days after the rendering of such bills in which to collect the charges. Railroad rules are less liberal, requiring that charges shall be collected within 48 hours except where shippers have established credit arrangements, when the time limit becomes 96 hours.

In another order the commission authorized forwarders to establish for various commodities rates depending upon "released" values of such commodities. It is the same as the released-rates orders applicable to railroads and motor carriers.

Short Line Dispute Heard at Chicago

Hearings on the dispute involving wages and vacations for non-operating employees of 27 short line railroads were begun at Chicago on August 10, before a three-man emergency board consisting of Walter P. Stacy, chief justice of the Supreme Court of North Carolina, chairman; W. H. Spencer, dean of the School of Business of the University of Chicago; and Edwin E. Witte, professor of economics of the University of Wisconsin. The cases are "carryovers" from an award made by an emergency board in December which directed short lines to increase wages and grant vacations with pay. A total of 41 short line railroads and car companies were originally involved in the dispute but 14 railroads and car companies made settlements prior to the hearings at Chicago. Of the 27 companies that are before the board, 7 are in the East, 7 are in the Southeast and 13 are in the West. Twenty-one companies are represented by counsel for the American Short Line Railroad Association and were presented in a group, while six companies presented their cases individually.

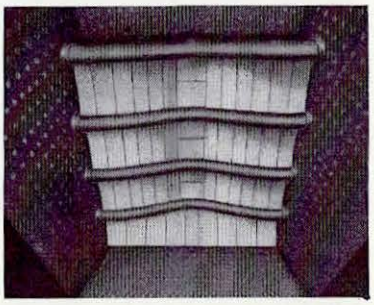
The non-operating brotherhoods demand that the 27 companies grant the same wage increases and vacations as were awarded on Class I carriers. The short lines and the car companies are willing to grant vacations but wish to retain differentials un-

News Department continued on next left-hand page

"One of the most important problems facing mechanical department officers on American railroads today is the necessity of increasing the availability of locomotives . . ."

From the prize-winning article in the April, 1942 issue of "Railway Mechanical Engineer"

Positioning of Security Circulators in an average size of locomotive firebox.



Typical Security Circulator and brick Arch Installation in a locomotive firebox.

Locomotives equipped with Security Circulators are *available* for more continuous operation over longer periods of time than other locomotives. This is due to:

1. **Improved arch brick support for all locomotive fireboxes**
2. **Reduced flue cleaning, honeycombing and cinder cutting**
3. **Improved circulation in side water legs**
4. **Lower boiler maintenance**

Increase the availability of all *your* locomotives by applying Security Circulators to fireboxes and combustion chambers.

AMERICAN ARCH COMPANY, INC.

60 East 42nd Street, New York, N. Y.

SECURITY CIRCULATOR DIVISION

der which wages on short lines are lower than those on Class I carriers. Increases of 9 cents an hour from September 1, 1941, to November 30, 1941, with a minimum of 45 cents an hour and of 10 cents an hour with a minimum of 46 cents an hour thereafter are sought by the unions. The vacation demand is for one week for manual employees who worked 160 days in the preceding year; nine days for clerical employees and telegraphers with two years of service; and three days more for those having three years' service.

In his opening remarks, counsel for the Atlanta, Birmingham & Coast pointed out that an offer of a 17½ per cent increase in wages which would make wages on this railroad 81 per cent of standard wages was accepted by some employees but was refused by clerks and maintenance of way and shop employees. He also stated that the increase offered would amount to $300,000 a year, whereas the freight rate increase granted on March 18, 1942, will increase the carrier's revenues only $240,000. Since 1927, he continued, this railroad has experienced a net operating deficit of $3,000,000 and that $17,000,000 of new money has been added to the company since 1909. He asked the board to find that his railroad should continue to pay wages that are 81 per cent of Class I railroad wages.

Bankruptcy Bill Hearings

Hearings on H. R. 7121, the House-approved measure which would re-enact chapter 15 of the Bankruptcy Act providing for voluntary reorganizations of railroad companies, began before a Senate interstate commerce subcommittee on August 12. The previous act, which was known as the Chandler Act, expired on July 31, 1940. The Baltimore & Ohio and the Lehigh Valley were the principal roads which effected voluntary interest readjustments under its provisions. Details of the original act were set out in the *Railway Age* of July 29, 1939, page 193.

Generally the list of witnesses was the same and their testimony in favor of the measure was similar to that offered at the House hearings, reported in the *Railway Age* of May 2, page 868. All the carrier witnesses urged the passage of the bill as approved by the House.

R. V. Fletcher, vice-president of the Association of American Railroads, told the subcommittee that both the Class I railroads and the short lines favored the re-enactment of the legislation on the ground that there was a real need for such a provision in the bankruptcy statutes. He also said that the railroads had contributed greatly to the war effort and that to force some railroads into a section 77 bankruptcy at this time would not help them to carry out their job in the present emergency.

OLD AXLES USED, NOT SCRAPPED.—Instead of scrapping worn car and locomotive axles, as was formerly the practice, the New Haven is using this steel as billets for the manufacture of a variety of repair parts, such as safety bars, equalizers, friction rod nuts, spring hangers, eccentric cranks, jigs and fixtures, and similar essential stock items.

Equipment and Supplies

The Car Program As It Was on Aug. 1

Only 15,888 cars remain to be delivered this year in present set-up

During the month of July, there were delivered an additional 839 cars of the original 36,000 authorized by the former Supply, Priorities and Allocations Board for construction subsequent to February 1 of this year. Of this number, 759 were built by contract car builders and 80 by railroad company shops. Number of cars remaining to be shipped under the SPAB program, as of August 1, was thereby reduced to 1,263, of which 833 were in contract car-builders' shops and 430 in railroad company shops.

New WPB Releases.—Of the 18,000 more cars authorized for 1942 construction by the War Production Board, following its limitation order of April 4, releases were granted by the WPB during July covering an additional 2,323 cars, including 322 covered hopper cars and 1,951 tank cars to be constructed in contract car-builders' shops and 50 covered hopper cars in the Chicago, Burlington & Quincy shops. The American Car & Foundry Co. is scheduled to build 272 of the 322 covered hopper cars released to builders, including 50 for the Central of New Jersey, 50 for the New York, Chicago & St. Louis, 50 for the Missouri Pacific, 100 for the Louisville & Nashville and 22 for Shippers Car Line, and the Mount Vernon Car Manufacturing Company, an additional 50 for the Missouri Pacific. The 50 covered hoppers to be built in the Burlington's shops are for that railroad's own use. The 1,951 tank cars are for various private car lines and have been allocated 1,392 to the American Car & Foundry Co. and 559 to the General American Transportation Corporation. (Releases for the 372 covered hopper cars represent a revision of original releases covering 500 hopper cars which were reported in the *Railway Age* of August 1, as allocated to the Shippers Car Line.)

As of August 1, 15,920 of the 18,000 cars in the WPB program were officially released, including the following: 2,500 flat cars, 5,016 gondola cars, 6,081 hopper cars, 372 covered hopper cars and 1,951 tank cars. Of the remaining 2,080 cars, 950 gondolas are reported scheduled for the Denver & Rio Grande Western, including 500 with wooden sides and steel doors to be built by the Pressed Steel Car Company and 450 of all-steel construction to be built by the Mount Vernon Car Manufacturing Company, and 250 hopper cars are reported scheduled to be built in the Chicago, Burlington & Quincy's shops; leaving but 880 open-top cars not yet released. (The Denver & Rio Grande Western was reported in the *Railway Age* of July 18 as ordering 1,000 gondola cars, including, in addition to the above 950 cars, 50 65-ft. mill-type gondolas which will not

Status of Freight Car Building Programs

SPAB 36,000 CAR PROGRAM—WPB 18,000 CAR PROGRAM

AUGUST 1, 1941

	Contract Car-Builders	*Railroad Company Shops*	*Total*
Number of cars in original SPAB program not yet delivered:			
Automobile	50	..	50
Box	92	..	92
Flat	..	63	63
Gondola	274	..	274
Hopper	131	367	498
Tank	286	..	286
Total	833	430	1,263
Number of cars in additional 18,000-car program of WPB which were released for construction:			
Flat	1,375	1,125	2,500
Gondola	2,326	2,690	5,016
Hopper	3,872	2,209	6,081
Covered Hopper	322	50	372
Tank	1,951	..	1,951
Total	9,846	6,074	15,920
Number of above WPB released cars not yet delivered:			
Flat	1,372	985	2,357
Gondola	1,976	1,853	3,829
Hopper	3,179	1,276	4,455
Covered Hopper	322	50	372
Tank	1,532	..	1,532
Total	8,381	4,164	12,545
Total backlog of cars on order and undelivered:			
Automobile	1,200	675	1,875
Box	8,326	4,113	12,439
Flat	1,372	1,048	2,420
Stock	..	200	200
Gondola	4,995	1,988	6,983
Covered Hopper	397	75	472
Hopper	13,151	3,678	16,829
Tank	1,828	..	1,828
Refrigerator	..	1,492	1,492
Caboose	25	395	420
Total	31,294	13,664	44,958
Number of total cars on order without WPB authority to build	22,080	8,508*	30,588

* After deducting an additional 562 cars (270 cabooses and 292 refrigerator cars) not chargeable against the SPAB or WPB programs.

News Department continued on next left-hand page

The IMPORTANCE of our Railroads

1828—On July 4, 1828, 91-year-old Charles Carroll, last surviving signer of the Declaration of Independence, declared as he helped to lay the cornerstone of America's first commercial railroad:

> "I consider this among the most important acts of my life; second only to my signing the Declaration of Independence, if even it be second to that".

1942—The importance of railroads to our country today is as great as at any previous time. American railroad men and railway supply men are fully aware of this fact and are grimly resolved that nothing shall interfere with their common determination "to keep 'em rolling".

A-1518

ELESCO

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

THE SUPERHEATER COMPANY

Representative of
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• • •
Montreal, Canada
THE SUPERHEATER COMPANY, LTD.

be built at this time and consequently not charged against the WPB quota.)

Deliveries Under WPB Quota.—A total of 1,771 of the cars in the WPB program were delivered during July, 900 by contract car-builders and 871 by railroad company shops. There remained to be delivered at August 1 12,545 of the 15,920 released, 8,381 by contract car-builders and 4,164 by railroad shops. With 1,263 cars remaining in the SPAB quota and 2,080 not yet officially released in the WPB quota, there remains therefore but 15,888 more cars to be delivered to complete the 1942 car-building programs.

Backlog of cars on order continues large despite the fact that most of the cars are "frozen." Thus, as of August 1, the number of cars on order totaled 44,958, of which 31,294 are placed with contract builders and 13,664 with railroad shops. Of this number, 30,588 are lacking WPB authority to build—22,080 with contract builders and 8,508 with railroad shops. A number of cancellations of orders were reported, the most notable of which comprised 3,598 cars on order for the New York Central at Despatch Shops, Inc. Large orders at present "frozen" by WPB restriction include 1600 cars for the Atlantic Coast Line; 2,035 for the Baltimore & Ohio; 1,919 for the Chicago & Northwestern; 1,495 for the Chicago, Milwaukee, St. Paul & Pacific; 2,881 for the Louisville & Nashville; 1,350 for the Missouri Pacific; 1,700 for the Reading; 3,456 for the Southern and 2,523 for the Union Pacific.

Details of the reported status of the freight car building programs as of August 1 are shown in the accompanying table.

FREIGHT CARS

The COLORADO FUEL & IRON CORPORATION is inquiring for 30 ore cars of 75 tons' capacity.

MOTOR VEHICLES

THE BURLINGTON TRANSPORTATION COMPANY, subsidiary of the Chicago, Burlington & Quincy, has received delivery of sixteen 37-passenger city-type motor buses from the a. c. f. Motors Company.

Supply Trade

George J. Kuhback, for twelve years with the sales promotion and advertising department of the Union Switch & Signal Co., has joined the writing staff of **Doyle, Kitchen & McCormick, Inc.,** New York.

The Army-Navy production award for high achievement in the production of war equipment has been conferred upon **S. F. Bowser & Company, Inc.,** Fort Wayne, Ind., and their wholly owned subsidiary, the **Fostoria Screw Company** of Fostoria, Ohio.

Joseph Michaels, president of the **Hyman-Michaels Company,** Chicago, has been elected chairman of the board and has been succeeded by **Sparrow E. Purdy,** vice-president. **Everett B. Michaels,** secretary, has been elected executive vice-president.

Railway Underwriters, Chicago, has removed its offices to Room 1655, 175 West Jackson Boulevard, Chicago.

OBITUARY

T. Aurelius, who retired in 1940 as vice-president and manager of sales of the Railroad division of the Colorado Fuel & Iron Co., Denver, Colo., died in that city on July 31.

Construction

PENNSYLVANIA-ERIE. — The Pennsylvania Public Utility Commission has approved plans calling for the construction of a grade crossing where two main tracks and one sidetrack of the Pennsylvania and one main track and two sidetracks of the Erie cross Depot street in Sharon, Pa. The total cost of the improvement is estimated at $24,318, of which the railroads' expenditures, for which they will be reimbursed by the City of Sharon, will be as follows: by the Pennsylvania, $7,975, and by the Erie, $10,856.

WAR DEPARTMENT.—The following contracts for railroad construction have recently been awarded by the War Department: The U. S. Engineer Office at Detroit, Mich., has awarded a contract amounting to less than $1,000,000 to Deckert & McDowell, Kansas City, Mo., for the construction of railroad in Indiana, and another contract amounting to less than $1,000,000 to Brown & Mathews, Detroit, Mich., for the construction of railroad in Michigan. The U. S. Engineer Office at Omaha, Neb., has awarded a contract in amount less than $500,000 to Peter Kiewit Sons & Co., and the George W. Condon Co., at Omaha for the construction of railroad in Nebraska. The U. S. Engineer Office at Baltimore, Md., has awarded a contract in amount less than $500,000 to the H. R. Miller Company, Lancaster, Pa., for the construction of railroad in Maryland. The U. S. Engineer Office at Kansas City has awarded a contract in amount less than $500,000 to M. B. Watson, Topeka, Kan., for railroad construction in Kansas. The U. S. Engineer Office at New York has awarded a contract in amount less than $500,000 to the United New Jersey Railroad & Canal Co., Stelton, N. J., for the the construction and relocation of railroad facilities in New Jersey. Other contracts recently awarded, all of which amount to less than $50,000, are as follows: U. S. Engineer Office, Denison, Tex., to the Texas & Pacific for railroad construction in Texas; U. S. Engineer Office, Sacramento, Cal., to J. R. Reeves, Sacramento, for railroad construction in California; U. S. Engineer Office, San Francisco, Cal., to the Macco Construction Company, Clearwater, Cal., for the construction of railroad embankment in California; U. S. Engineer Office, Tulsa, Okla., to Deckert & McDowell, Kansas City, for the construction of railroad in Oklahoma; and U. S. Engineer Office, Philadelphia, Pa., to the Brann & Stuart Co., Philadelphia, for the construction of railroad in New Jersey.

Financial

BALTIMORE & OHIO.—*Merger and Securities.*—The Pittsburgh Junction and the Pittsburgh & Western, both wholly-owned subsidiaries of the Baltimore & Ohio, have asked the Interstate Commerce Commission for authority to merge the properties and franchises of the Pittsburgh Junction into the Pittsburgh & Western.

In connection with the merger the Pittsburgh & Western seeks authority to issue and dispose of $13,499,900 of its refunding and general mortgage bonds to refund a like amount of underlying matured bonds; to assume the obligation for the payment of bonds of the Pittsburgh Junction in the amount of $8,466,500; and to issue $1,940,000 of capital stock, consisting of 38,800 shares of a par value of $50 a share, which will be exchanged for an equal amount of capital stock of the Pittsburgh Junction to be surrendered for cancellation.

At the same time the Pittsburgh Junction has asked authority from the commission to issue $2,240,000 of refunding and general mortgage bonds and to dispose of the bonds in refundment of underlying matured bonds of the company in the amount of $1,740,000, and to retired bonds of the Pittsburgh Junction Terminal in the amount of $500,000. Only one bond in the amount of $2,240,000 will be issued. It will bear interest at the rate of four per cent and will mature October 1, 1992.

BESSEMER & LAKE ERIE.—*Control of the Pittsburg, Bessemer & Lake Erie.*—The United States Steel Corporation has been granted authority by Division 4 of the Interstate Commerce Commission to acquire further control of the Pittsburg, Bessemer & Lake Erie through purchase of additional shares of stock. (See *Railway Age* of July 11, page 74.)

BOSTON & MAINE.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a part of its Lakeport branch extending from near Dover station, N. H., to near Gonic station, seven miles.

CHICAGO & NORTH WESTERN.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a branch line extending from Eland, Wis., to Rosholt, 19.9 miles.

COLORADO & SOUTHERN.—*Abandonment.*—The Wichita Falls & Oklahoma and the Wichita Falls & Oklahoma of Oklahoma would be authorized to abandon the lines of railroad known as the Waurika branch which form a continuous route from Wichita Falls, Tex., to Waurika, Okla., 34.7 miles; the Wichita Valley would be authorized to abandon the operation of the line; and the Wichita Falls & Southern would be authorized to abandon the opera-

tion of the line under trackage rights, if Division 4 of the Interstate Commerce Commission adopts a recommended report of its Examiner Ralph R. Molster.

DELAWARE & HUDSON.—*Abandonment by the Schoharie Valley.*—The Schoharie Valley has been authorized by Division 4 of the Interstate Commerce Commission to abandon its entire line of railroad extending from Schoharie Junction, N. Y., to Schoharie, 4.3 miles.

ERIE.—*Northern R. R. of New Jersey.*—The United States District court at Newark, N. J., on August 4 approved a reorganization plan by which the Erie will acquire the Northern's 25 miles of trackage between Jersey City, N. J., and Nyack, N. Y. October 6 has been set as the date on which bondholders and stockholders may comment on the plan. The Northern has leased its trackage rights to the Erie since 1899.

FLORIDA EAST COAST.—*Bond Purchase Plan.*—The Florida National Building Corporation, controlled by trustees of the Alfred L. du Pont estate, has agreed to purchase from four institutions, represented by the committee for series A first and refunding five per cent bonds due 1974, $3,000,000 principal amount of the bonds at a price of 16½ per cent, flat, or $165, less expense charge of $8.85 and federal transfer tax of $.50, per $1,000 bond. The four institutions are J. P. Morgan & Co., Inc.; the First National Bank of New York; the Metropolitan Life Insurance Company and the Northwestern Mutual Life Insurance Company. The Florida National has also offered to purchase at the same price, until September 5, 1942, all bonds held by any other depositors.

ILLINOIS CENTRAL.—*Abandonment.*—This company has been granted authority by Division 4 of the Interstate Commerce Commission to abandon a line of railroad extending from a point of connection with the Freeport-Madison division at Red Oak, Ill., in a general northwesterly direction to Dodgeville, Wis., 57.4 miles.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a portion of its Centreville branch extending from valuation station 2666 plus 75 to the end of the branch at Allen's Creek, Tenn., 10.4 miles.

NEW YORK CENTRAL.—*Acquisition of Control.*—This company has asked the Interstate Commerce Commission for authority to acquire control of the St. Joseph, South Bend & Southern through the purchase of its capital stock.

NORTHERN PACIFIC.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from Harrison, Mont., to Pony, 6.7 miles.

NORTHWESTERN PACIFIC.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a portion of the so-called Sonoma branch extending from Sonoma, Calif., to the end of the branch near Glen Ellen, 6.6 miles.

PORTLAND TERMINAL.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon that portion of its so-called Union branch line extending from valuation station 113 plus 39 to valuation station 134 plus 34, 2,085 ft., in the city of Portland, Me.

SOUTHERN PACIFIC.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a portion of the Redlands branch extending from Crafton, Calif., to the end of the branch at Greenspot, 1.8 miles.

WABASH.—*Equipment Financing.*—This railroad has invited bids on August 15 on $2,000,000 of series A 10-year equipment trust certificates, payable in 10 equal maturities of $200,000 each beginning August 1, 1943. Bids are to be not less than 99, the bidder to set the coupon rate. Although the equipment is reported to have been released by the War Production Board, the indenture will provide that government bonds may be substituted. The equipment, which will cost $2,585,847, includes 520 steel box cars, 125 tight-end automobile cars, 25 end-door automobile cars, 150 gondola cars and 25 covered hopper cars.

Average Prices Stocks and Bonds

	Aug. 4	Last week	Last year
Average price of 20 representative railway stocks..	26.94	26.75	30.33
Average price of 20 representative railway bonds..	65.01	64.66	65.86

Dividends Declared

Pittsburgh, Youngstown & Ashtabula.—Preferred, $1.75, quarterly, payable September 1 to holders of record August 20.

NO TIME FOR "SPITE FENCES."—Calling for action to tear down the "spite fences" between American capital and labor and between government and industry, Walter D. Fuller, chairman of the board of the National Association of Manufacturers and president of the Curtis Publishing Company, spoke before the Chautauqua Institute Assembly at Chautauqua, N. Y., recently. Such action would be part of a battle against inflation, which, he declared, is steadily creeping up on us.

The speaker suggested some other lines of attack to be followed in this battle. Inflation is moving forward through three channels—blanket wage increases, class taxation, and favoritism to pressure groups—he said, and cannot be halted by wishful thinking alone. The subject of greatest concern, in his opinion, is the growing threat in these movements to the financial reserves of American industry, to the stability of businesses that should be ready, when the Axis is defeated, to employ men and women in peaceful pursuits, to rebuild markets, absorb accumulated purchasing power, and create a "beneficial cycle of desires, employment, payrolls and production." He painted an attractive picture of the effects of such a cycle, but predicted a disastrous crash if these current conditions favorable to inflation are not quickly corrected.

Railway Officers

EXECUTIVE

W. H. Hobbs has been appointed engineering assistant to the chief executive officer of the Missouri Pacific, with headquarters at St. Louis, Mo.

Raymond L. Gebhardt, whose election as vice-president—operations of the New York, Ontario & Western at New York was reported in the *Railway Age* of August 8, was born on September 9, 1882, at Easton, Pa. Mr. Gebhardt attended Lafayette College of Civil Engineering and entered railroad service on August 24, 1908, as draftsman with the Lehigh Valley. In April, 1910, he was appointed assistant engineer and on October 15, 1912, he became division engineer of the same road. On April 15, 1916, Mr. Gebhardt was appointed trainmaster and on July 23, 1918, he became division superintendent, serving on various divisions until July 1, 1941, when he left the Lehigh Valley to become executive assistant to the trustee of the New York, Ontario & Western, which position he held until his recent election as vice-president—operations.

Raymond L. Gebhardt

FINANCIAL, LEGAL AND ACCOUNTING

S. V. Reeves, statistician of the Atchison, Topeka & Santa Fe, has been appointed assistant to the general auditor, with headquarters as before at Chicago.

Jonathan C. Gibson, general attorney of the Atchison, Topeka & Santa Fe at Chicago, has been appointed general attorney—California, with headquarters at Los Angeles, Cal.

Nye F. Morehouse, whose promotion to assistant general counsel of the Chicago & North Western, with headquarters at Chicago, was reported in the *Railway Age* of July 4, was born at Fremont, Neb., on April 3, 1889, and graduated from the University of Nebraska College of Law in

News Department continued on second left-hand page

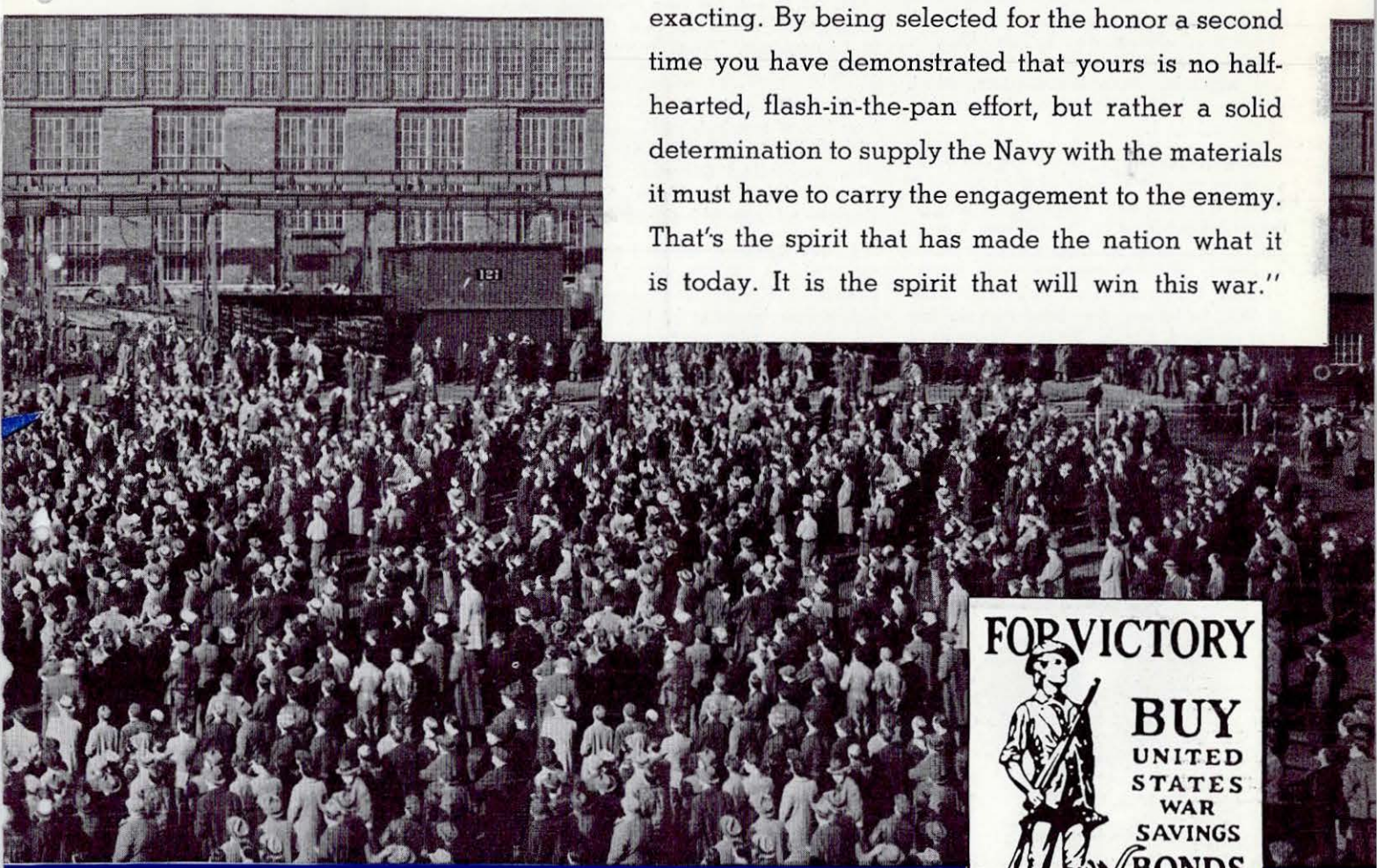
A Star

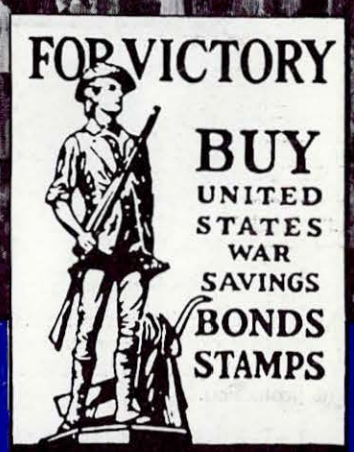
has been added!

First awarded the Navy "E" on October 24, 1941, the privilege to fly the pennant was extended to American Locomotive Company for a second six months' period on April 24, 1942 and a star was added to the burgee.

In his letter renewing the citation, Rear Admiral H. A. Wiley said,

"A Navy "E" is not lightly bestowed in the first instance; the requirements for renewal are equally exacting. By being selected for the honor a second time you have demonstrated that yours is no half-hearted, flash-in-the-pan effort, but rather a solid determination to supply the Navy with the materials it must have to carry the engagement to the enemy. That's the spirit that has made the nation what it is today. It is the spirit that will win this war."





AMERICAN LOCOMOTIVE

Manufacturers of Mobile Power

Steam, Diesel and Electric Locomotives, Marine Diesels, Tanks, Gun Carriages and other Ordnance

1911. He then engaged in the general practice of law at Fremont and Omaha, Neb., until August, 1917, when he entered military service, later becoming a major of Infantry, U. S. Army. He has since held commissions as major, Infantry Reserve Corps; lieutenant-colonel, Inspector Gen-

Nye F. Morehouse

eral's Reserve Corps, and lieutenant-colonel, Infantry Reserve Corps. In April, 1919, Mr. Morehouse entered railway service as a general attorney of the North Western at Chicago and in July, 1925, he was promoted to assistant general solicitor, with the same headquarters, which position he held until his recent promotion, effective July 1.

Lowell Hastings, whose promotion to assistant general counsel of the Chicago & North Western, with headquarters at Chicago, was reported in the *Railway Age* of July 4, was born at Indianapolis, Ind., on August 1, 1902, and graduated from Northwestern University Law School in 1928. In 1928, he became associated with the law firm of Good, Childs, Bobb & Westcott at Chicago and a year later with the firm Sanders, Childs, Bobb & Westcott. In

Lowell Hastings

1931, he entered railway service as a general attorney of the North Western at Chicago, which position he held until his recent promotion.

Ivan C. Flitcraft has been appointed secretary and assistant treasurer of the Midland Valley, the Kansas, Oklahoma & Gulf, and the Oklahoma City-Ada-Atoka, with headquarters at Philadelphia, Pa., succeeding **E. P. Wagner.**

Edmund Mech, chief clerk to the auditor of passenger and station accounts of the Illinois Central at Chicago, has been promoted to assistant treasurer, with the same headquarters, succeeding **C. F. Mann,** who has retired.

J. A. Tauer, comptroller's assistant of the Great Northern, has been promoted to assistant comptroller, with headquarters as before at St. Paul, Minn. **A. Selander** has been appointed cashier and **C. F. Ziegahn** has been appointed assistant secretary and transfer agent, both with headquarters at St. Paul.

Joseph A. McClain, Jr., dean of the Washington University School of Law, has been appointed general counsel of the Terminal Railroad Association of St. Louis, effective October 1, to succeed **Carleton S. Hadley** who has resigned as vice-president and general counsel. The position of vice-president will not be filled.

OPERATING

H. O. Noack has been appointed superintendent of dining cars of the Southern at Chattanooga, Tenn., succeeding **E. L. Kopp.**

W. S. Baker has been appointed superintendent of terminals of the Atlantic Coast Line, with headquarters at Jacksonville, Fla., succeeding **Clarence L. Burpee,** who has joined the United States Army Engineers Corps with the rank of colonel.

C. W. Dentner, terminal trainmaster of the Chicago, Burlington & Quincy at Omaha, Neb., has been promoted to assistant superintendent of the West Hannibal division, with headquarters at Brookfield, Mo., succeeding **J. E. Thiehoff,** transferred.

F. E. Trogler, assistant foreman of engines, Pittsburgh division of the Pennsylvania, has been appointed assistant trainmaster of that division. **C. J. Newkirk,** special duty engineman, Pittsburgh division, has been appointed assistant trainmaster and assistant road foreman of engines of the Monongahela division.

George C. Stuart, trainmaster of the Wisconsin division of the Chicago & North Western at Kenosha, Wis., has been promoted to assistant superintendent of the Lake Shore division, with headquarters at Fond du Lac, Wis., succeeding **Harry J. Ewing,** who retired on August 1. **Christ A. Hummel,** trainmaster at Milwaukee, Wis., has been transferred to Kenosha, relieving Mr. Stuart, and **Elmore E. Coover,** assistant trainmaster at Chicago, has been advanced to trainmaster at Milwaukee, replacing Mr. Hummel.

T. J. Cody, a trainmaster of the Chicago, St. Paul, Minneapolis & Omaha, has been promoted to superintendent of terminals at Superior, Wis., succeeding **F. J. Taylor,** who has been appointed division superintendent at St. James, Minn., replacing **James J. Mealey,** who retired because of ill health on July 1. Mr. Mealey was born in New York on January 1, 1880, and entered railway service in 1896 as a section laborer on the Great Northern, later serving as section foreman and extra gang foreman at various locations in Minnesota. In 1899 he went with the Omaha as a brakeman and later served as a conductor and switch foreman. In 1914 he was appointed agent at Spooner, Wis., and from 1915 to 1918 he served as a conductor. In the latter year, he was promoted to trainmaster and in 1920 he was advanced to superintendent of the Twin City Terminal division, with headquarters at Minneapolis, Minn. Mr. Mealey was transferred to St. James, Minn., in 1941, where he remained until his retirement.

Fred Hawk, superintendent of transportation of the New York, Ontario & Western at Middletown, N. Y., has been promoted to general superintendent, with the same headquarters. Mr. Hawk was born at East Branch, N. Y., on Septem-

Fred Hawk

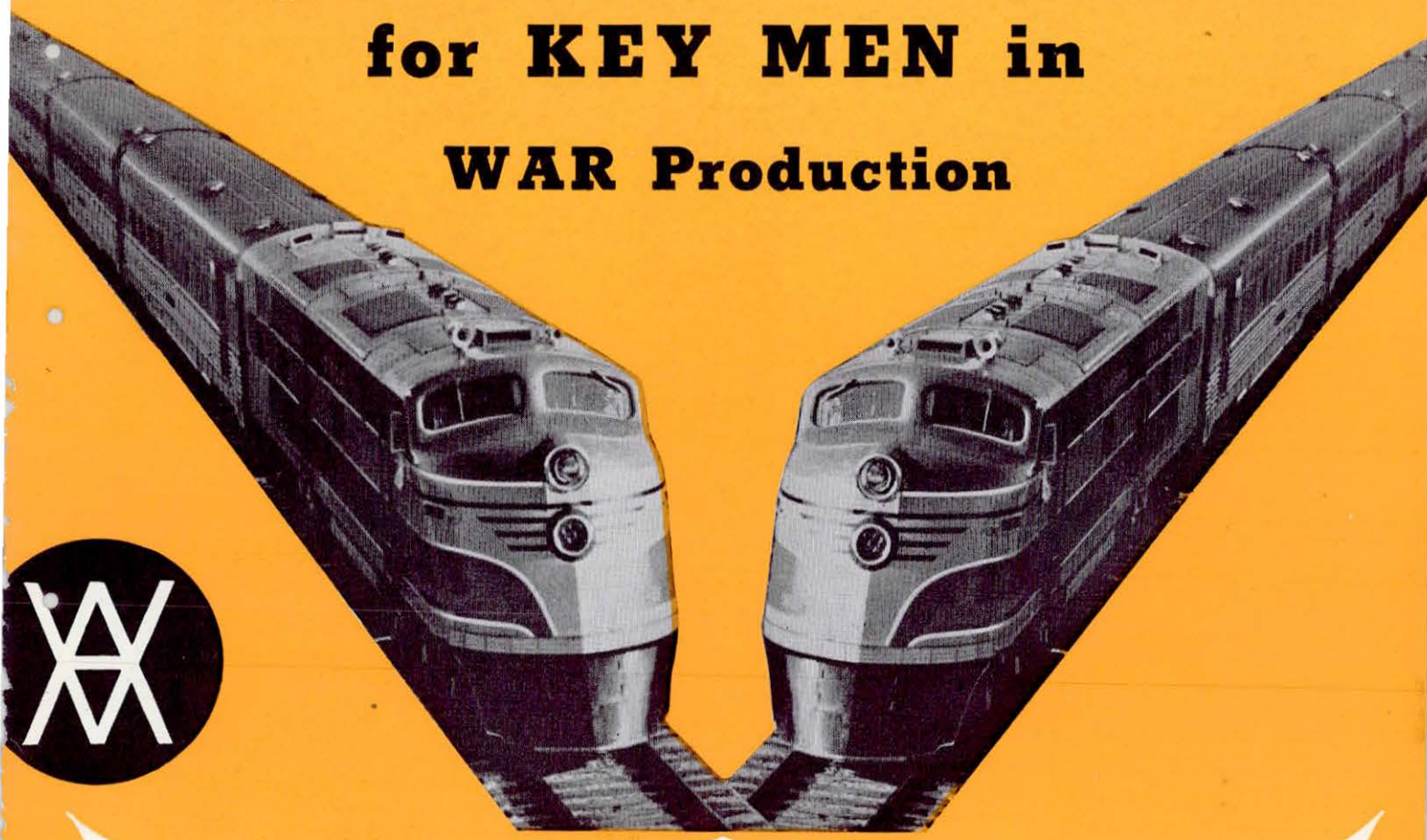
ber 9, 1881, and entered the service of the New York, Ontario & Western on October 24, 1899, as trainman, being promoted to flagman on May 21, 1904. He became conductor on October 20, 1910, and assistant inspector of transportation on April 23, 1920. On April 1, 1929, he became trainmaster and on January 27, 1931, he was appointed assistant superintendent of the Scranton division, Mayfield yard. Mr. Hawk was promoted to superintendent of the Scranton division on August 1, 1936, at Childs, Pa., which position he held until October, 1941, when he became superintendent of transportation.

John Allen McIsaac, general supervisor of sleeping and dining car services of the Canadian National, has been appointed assistant general superintendent of the sleeping and dining car department, with headquarters at Montreal, Que. **David Cecil Gilmore,** assistant superintendent of the sleeping and dining car services at Winnipeg, Man., has been appointed general supervisor, sleeping and dining car services at Montreal.

Mr. McIsaac was born at Cataract, Pa., on June 10, 1886, and entered railway service in 1910 as parlor and sleeping car con-

News Department continued on next left-hand page

Swift Travel ...Smoothly, Safely, for KEY MEN in WAR Production



The accent on passenger transportation is swinging to that for men who have major responsibility in producing vital war materials and equipment, and those who are fighting to victory for us — army and navy officers, industrial executives, our soldiers and sailors. Unimportant civilian travel can, and will be deferred ★ Fortunate are those roads that now have trains equipped with the Electro-Pneumatic HSC Brake Equipment, which makes a vital contribution to smoother, safer, faster transportation for these "elites" ★ Fortunate also will carriers be to have such modernized facilities for meeting the predicted keener competition of peace times, when again the discriminating "common folks" can, and will choose the best available means of travel.

Electro-Pneumatic BRAKES

WESTINGHOUSE AIR BRAKE CO. ★ Wilmerding, Pennsylvania

ductor of the Canadian Government Railways (now Canadian National) at Halifax, N. S. He was subsequently promoted to assistant commissary clerk, commissary clerk, assistant supervisor, supervisor and inspector, and in March, 1922, was sent to Montreal as sleeping and dining car agent. In 1923, he became assistant superintendent with the same headquarters, and in April, 1932, returned to Halifax as acting superintendent. In July, 1934, Mr. McIsaac was promoted to supervisor of sleeping and dining car services at Montreal, and in 1937 he became general supervisor, which position he held until his present appointment.

Mr. Gilmore was born in Londonderry, Ireland, on May 8, 1896, and came to Canada in 1911 when he entered the service of the Canadian Northern (now Canadian National) at Winnipeg as a clerk in the sleeping and dining car department. After more than three years of overseas service with the Canadian Expeditionary Forces, he resumed his railway duties at Winnipeg, and in May, 1920, was promoted to inspector. Less than two years later, he was sent to Edmonton, Alta., in a similar capacity and on April 1, 1923, became sleeping and dining car agent. Mr. Gilmore was transferred to Montreal in 1925 and in April, 1928, was promoted to assistant superintendent at Edmonton. He was appointed to a corresponding position at Winnipeg on September 1, 1935, where he remained until his present promotion.

John Allen McIsaac

Charles M. Shriver, general superintendent of the Maryland district of the Baltimore & Ohio at Baltimore, Md., has been appointed general manager of the New York properties of the company, with headquarters at New York, succeeding **Donald F. Stevens,** who has been appointed assistant to vice-president of operation and maintenance. A photograph of Mr. Stevens and a biographical sketch of his railway career were published in the *Railway Age* of May 9, in connection with his appointment as general manager of the New York properties.

Mr. Shriver was born on January 9, 1893, at Baltimore, Md., and was educated in the public schools, Boys Latin School and Lehigh University. He entered the service of the Baltimore & Ohio in June, 1910, as machinist apprentice, becoming a machinist in July, 1915. In January, 1916, he was appointed an inspector of fuel service, and was promoted to assistant road foreman of engines in April, 1916, becoming assistant trainmaster in March, 1917.

Charles M. Shriver

In May, 1917, he was promoted to trainmaster and from July, 1918, to May, 1919, he was furloughed for military service, returning to the Baltimore & Ohio in May, 1919, as trainmaster. He was promoted to assistant superintendent of terminals at Baltimore in July, 1920, becoming superintendent of terminals in June, 1921, and superintendent of the Baltimore division on December 1, 1930. Mr. Shriver was transferred to the Cumberland (Md.) division in July, 1936, and was promoted to general superintendent at Baltimore on January 1, 1941, which position he held until his recent promotion.

TRAFFIC

E. A. Reilly has been appointed assistant general coal freight agent (rates) of the Chesapeake & Ohio, with headquarters at Richmond, Va.

R. F. Shaffer has been appointed traffic manager, department of highway motor transport of the Atchison, Topeka & Santa Fe, with headquarters at Chicago.

J. S. Combs, general agent, freight traffic department of the Central of Georgia, with headquarters at Savannah, Ga., has been transferred to Pittsburgh, Pa.

Arthur B. Murphey, general agent of the Toledo, Peoria & Western at Chicago, has been promoted to assistant general freight agent, with the same headquarters, a change of title.

R. A. Barnett, traveling freight agent of the New York Central at New Orleans, La., has been promoted to general agent, freight department, at Peoria, Ill., succeeding **M. E. Ingalls,** who has entered military service.

C. M. Park, general agent of the Chicago, Milwaukee, St. Paul & Pacific at Cleveland, Ohio, has been transferred to Pittsburgh, Pa., succeeding **J. M. Cunningham,** who has been transferred to Chicago, as reported in the *Railway Age* of July 25. **R. G. Davisson,** traveling agent at Cleveland, Ohio, has been advanced to general agent at that point, replacing Mr. Park.

A. G. Hilker, chief rate clerk of the passenger traffic department of the Union Pacific at Omaha, Neb., has been promoted to assistant to the general passenger traffic manager, with the same headquarters.

William E. Post, traveling freight and passenger agent of the St. Louis-San Francisco at Atlanta, Ga., has been promoted to general agent at Jacksonville, Fla., succeeding **Victor H. Biederman,** who has been transferred to New Orleans, La. Mr. Biederman relieves **William L. O'Toole,** who has entered military service.

W. O. Sydnor, Jr., traveling freight agent of the Chesapeake & Ohio, with headquarters at Huntington, W. Va., has been promoted to general agent, freight traffic department, with headquarters at Beckley, W. Va., succeeding **E. A. Reilly,** whose promotion to assistant general coal freight agent is noted elsewhere in these columns.

R. W. Sager, general agent, freight department, of the Chicago, Rock Island & Pacific at San Antonio, Tex., has been transferred to Houston, Tex., succeeding **Thomas F. O'Kane,** who has been promoted to general freight agent at Ft. Worth, Tex., as reported in the *Railway Age* of July 11. **C. P. Varney** has been appointed general agent, freight department, at San Antonio, relieving Mr. Sager.

W. A. Murphy, general agent of the Chicago, Milwaukee, St. Paul & Pacific at Detroit, Mich., has been promoted to general southwestern agent, with headquarters at Kansas City, Mo., succeeding **Paul H. Draver,** who has been appointed district freight agent at Milwaukee, Wis. **E. D. Schafer,** traveling freight agent at Detroit, has been advanced to general agent at that point relieving Mr. Murphy.

E. M. Sellers, whose promotion to general freight agent of the Delaware, Lackawanna & Western at New York was reported in the *Railway Age* of July 18, was born at Phillipsburg, N. J. Mr. Sellers entered the service of the Lackawanna in 1907 as a rate clerk in the freight office at Hoboken, N. J., being transferred to the rate department of the general freight office at New York in 1908. In February, 1922, he became freight representative in the division freight office at Newark, N. J., transferring to New York three years later. Mr. Sellers was appointed secretary to the vice-president of traffic in November, 1932, and was promoted to assistant general freight agent in September, 1933, which position he held until his recent promotion.

F. A. Adams, assistant freight traffic manager of the Chicago, Rock Island & Pacific at Los Angeles, Cal., retired on July 31. Mr. Adams was born at Comanche, Tex., on September 23, 1878, and entered railway service in 1896 with the

News Department continued on next left-hand page

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Texas & Pacific at Dallas, Tex. In 1911, he went with the Rock Island, later becoming chief clerk of the traffic department at Ft. Worth, Tex. In December, 1917, Mr. Adams was promoted to assistant general freight agent and in January, 1925, he was promoted to assistant to the freight traffic manager at Chicago. In November, 1926, he was promoted to assistant freight traffic manager, with the same headquarters, and on October 1, 1935, he was transferred to Los Angeles, where he remained until his retirement.

ENGINEERING & SIGNALING

F. K. Calkins has been appointed division engineer of the Denver & Salt Lake, with headquarters at Denver, Colo., a newly created position.

I. D. Talmadge, roadmaster of the New York, Ontario & Western, has been promoted to district engineer, with headquarters as before at Middletown, N. Y. **H. H. Hann,** supervisor of safety, has been promoted to district engineer at Walton, N. Y. **F. L. Cagwin,** roadmaster at Childs, Pa., has been promoted to district engineer at Mayfield Yard, Pa. **E. J. DeWitt,** office engineer, has been promoted to engineer of bridges and buildings, with headquarters as before at Middletown, N. Y.

Frank J. Meyer, assistant chief engineer of the New York, Ontario & Western at Middletown, N. Y., has been promoted to chief engineer. Mr. Meyer was born in Brooklyn, N. Y., on August 18, 1884, and began his career as rodman for the Rapid Transit Subway Construction Company in the East River terminals. Mr. Meyer entered railway service on February 1, 1906, in the engineering department

Frank J. Meyer

of the New York, Ontario & Western, serving successively as chainman, rodman, levelman, transitman, chief of party, supervisor of tracks, roadmaster, engineer in charge of bridges, buildings, tunnels, docks, anthracite and bituminous coal storage, tie and timber inspection, grade crossing eliminations and general roadmaster. Mr. Meyer was appointed assistant chief engineer on May 1, of this year, holding this position at the time of his recent promotion. Mr. Meyer is a member of the executive committee of the Roadmasters and Maintenance of Way Association.

Joseph J. Graf, Sr., engineer of telegraph and telephone of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., has retired. Mr. Graf entered railroad service in September, 1903, as a lineman in the telegraph department of the Lackawanna. He was promoted to foreman in February, 1905, and in 1907 became general foreman. In May, 1909, he became electrical engineer, and on January 1, 1920, he was advanced to engineer of telegraph and telephone. In 1913 Mr. Graf participated in an experiment which proved to be of great significance in the world of communication. On November 25 of that year, after many days of endless experimenting, Mr. Graf, David Sarnoff, now president of the Radio Corporation of America; Dr. Lee DeForest, radio pioneer; Charles Logwood and other officers of the American Marconi Company demonstrated that messages could be sent to and from a speeding railroad train as well as over land and sea. Apparatus was installed on the Lackawanna Limited, and the test was made after the train left Scranton for Buffalo. During this first test, however, two-way communication was impossible because of the blowing out of a generator, but after further experiments, Mr. Graf and his co-workers met with success. Mr. Graf is the inventor of the drag detector, which detects dragging brake rods and broken wheels, and has designed various other types of apparatus in general use in the field of his specialty.

MECHANICAL

Harwood S. Flippen has been appointed road foreman of engines of the Atlantic Coast Line, with headquarters at Wilmington, N. C.

A. H. Williams, general foreman of the Atlantic Coast Line, with headquarters at Wilmington, N. C., has been appointed master mechanic of the Wilmington district, with the same headquarters.

R. H. Duncan, general foreman of the Atlantic Coast Line, with headquarters at Montgomery, Ala., has been appointed master mechanic of the Montgomery district, with the same headquarters.

Ben M. Brown, general superintendent of motive power of the Southern Pacific, with headquarters at San Francisco, Cal., has been appointed also general superintendent of motive power of the Northwestern Pacific and the San Diego & Arizona Eastern, succeeding **George McCormick,** retired.

T. B. Dobbins, general foreman of the Atlantic Coast Line at Thomasville, Ga., has been appointed master mechanic at Waycross, Ga., succeeding **C. A. White,** who has been furloughed for military duty as a major in the 703rd Engineers, Railway Grand Division, U. S. Army. **F. C. Wenk,** road foreman of engines at Waycross, succeeds Mr. Dobbins as general foreman at Thomasville. **H. O. Welch,** fireman instructor at Waycross, has been appointed road foreman of engines succeeding Mr. Wenk.

PURCHASES AND STORES

J. B. Fraser, district storekeeper of the Canadian National at Saskatoon, Sask., has been transferred to Transcona, Man., succeeding **John S. Park,** who, in turn, has been transferred to Saskatoon, relieving Mr. Fraser.

H. M. Dewart, purchasing agent of the Central Vermont, with headquarters at St. Albans, Vt., has been appointed purchasing agent of the Grand Trunk Western lines, with headquarters at Detroit, Mich., succeeding **T. P. Harris,** who has been appointed purchasing agent of the Canadian National, with headquarters at Winnipeg, Man.

Mr. Dewart was born at St. Albans, Vt., on April 17, 1893, and entered railroad service as a clerk in the accounting department of the Central Vermont at St. Albans. In May, 1912, he transferred to the purchasing department and was appointed chief clerk on November 1, 1913. In 1917 he became assistant purchasing agent and in June, 1918, was promoted to purchasing agent at St. Albans, the position he held until his present appointment.

Mr. Harris was born at Bristol, England, on October 26, 1896, and entered railroad service in June, 1911, with the Grand Trunk Western. He left that road in February, 1915, to enlist in the Canadian Expeditionary Force, and on demobilization in May, 1919, Mr. Harris returned to the purchasing department. He was appointed purchasing agent at Detroit in July, 1938, the position he held until his recent appointment.

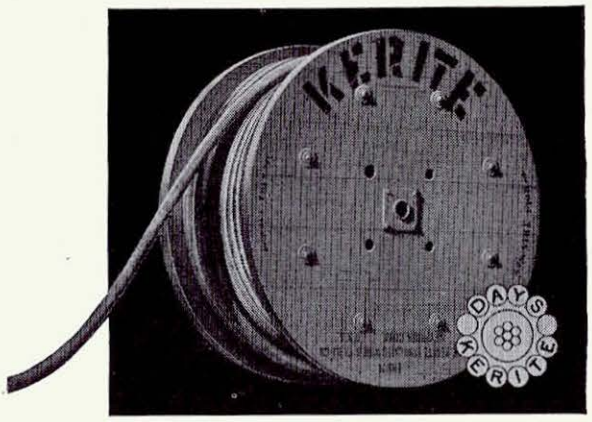
OBITUARY

John B. Wesley, engineer of water service of the Missouri Pacific, with headquarters at St. Louis, Mo., died suddenly, on July 1, following a heart attack.

Stewart R. Herod, Canadian freight and passenger agent of the Chicago, Rock Island & Pacific, with headquarters at Toronto, Ont., died on August 5 at his home in that city at the age of 42.

Mark W. Potter, president of the Pennsylvania Coal & Coke Corporation, at New York, and formerly a member of the Interstate Commerce Commission and president of Carolina Clinchfield & Ohio, died on August 12, at the age of 76.

BRITISH CONTINUE NON-STOP RUNS.—In spite of wartime maintenance difficulties, British railroads are continuing regular operation of long non-stop passenger train runs, reports Modern Transport (London). Daily performances on the London, Midland & Scottish alone include 53 such runs of over 100 mi.; the longest is between Crewe and Glasgow, 243¼ mi., with a daily non-stop schedule in each direction.



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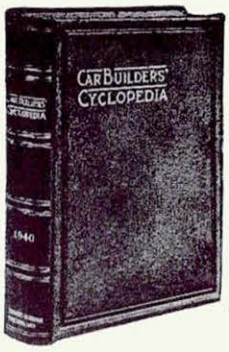

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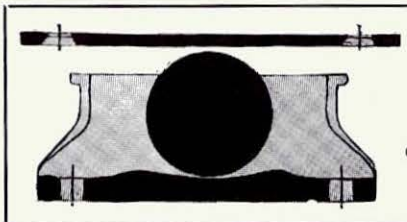

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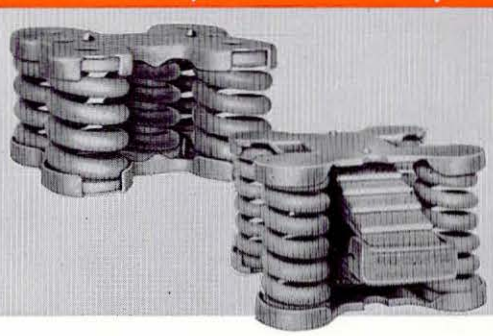
TWO-FOLD PRODUCTION FOR VICTORY...

WAR MATERIALS.. "For the Fighting Front"

PHOTO BY U. S. ARMY SIGNAL CORPS

RAILWAY EQUIPMENT.. "For the Home Front"



• Since the outbreak of war, Symington-Gould has increased greatly its production of armor and other steel castings for our fighting forces. A new plant is now in operation. Others are under construction . . . pointing to new tonnage peaks in months ahead.

• Spring group control devices are another of the many railway equipment products which Symington-Gould continues to manufacture . . . so that American railroads can "Keep'em Rolling" to Victory.

★

OVER 40 YEARS OF RESEARCH AND DEVELOPMENT OF RAILWAY EQUIPMENT

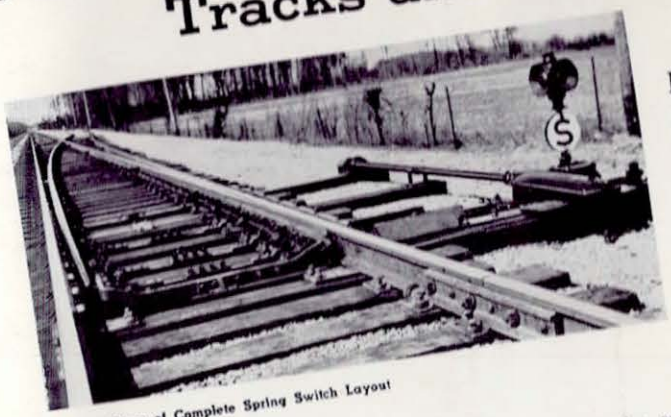
THE SYMINGTON-GOULD CORPORATION

RAILWAY AGE

Vol. 112, No. 22

Pere Marquette Improves Passing Tracks and Signaling

Lengthens eight sidings and removes twelve in 123 miles—Installs centralized traffic control on 28 miles, and respaces automatic blocks on the remaining sections



General View of Complete Spring Switch Layout

THE Pere Marquette has recently completed extensive changes and additions to the passing tracks and signaling on 123.6 miles of its main line between Grand Rapids, Mich., and Plymouth, which is a part of its through route between Chicago and Detroit. The line is double track between Detroit and Plymouth, 24.5 miles, as well as between Grand Rapids and Seymour, 3.9 miles. Between Plymouth and Seymour, 123.6 miles, the line is single track except for 2.7 miles of double track through Lansing.

These passing tracks and signal changes became necessary on account of a series of developments in which other factors which enter into train operation on this division were so far advanced that inadequacy of passing sidings, the locations of signals and the use of hand-operated switches prevented realization of the full benefits of the higher capacity locomotives recently installed. The signals and passing tracks on the division were installed for the operation of shorter trains at much lower ...day. The side tracks were too ... close together to ...

mixed trains, and 20 or more through and local freight trains. Two mixed trains and from two to four freight trains operate over the division only between Grand Rapids and Elmdale, at which latter point they are diverted over a branch line to Saginaw.

Grade Conditions

Between M. P. 24 at Plymouth and M. P. 33 the difference in elevation is 250 ft., with a maximum ascending grade of 0.95 westward, and a helper locomotive is therefore coupled at the rear of each westbound tonnage freight train over this section. The return of these helpers to Plymouth adds to the movements. Between M. P. 33 and M. P. 148 at Seymour, the grade is rolling, with maximum ascending grades up to 1 per cent in each direction; in one instance, at M. P. 120, there is 2,000 ft. of 1.8 per cent grade westward. As all of these grades are short, the locomotives can handle rated tonnage, provided the trains are not required to ... The maximum authorized speed is 70 m. p. h. for ... trains and 50 m. p. h. for freight trains. Unspecified in time table or marked by speed ... trains on curves is restricted ... to 50 m. p. h. ... were

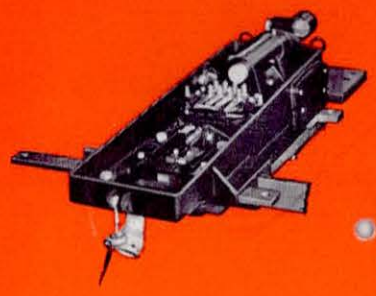
G-R-S TYPE A FACING POINT LOCKS—

installed on nine spring switches – are contributing to the improved train operation.

- Approximately 7300 train stops annually are eliminated.
- On heavy days the road time of freight trains is reduced about 45 minutes.
- The full benefits of the higher capacity locomotives, capable of sustained speeds of 50 m.p.h. with rated tonnage, are being realized.

Tests show that at locations where conditions are adverse, tonnage trains can depart 12 minutes more quickly because of the use of spring switches. Since these switches are equipped with **G-R-S TYPE A FACING POINT LOCKS**, no speed restrictions are imposed on through main track moves.

(For details see Railway Age, May 30, 1942, page 1076)



IMPROVED TRAIN OPERATION IS A WARTIME NECESSITY. FOR FULL REALIZATION OF THE OPERATING ADVANTAGES OF SPRING SWITCHES EQUIP THEM WITH **G-R-S TYPE A FACING POINT LOCKS.**

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